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Forest Service

Alaska Region
Report
Number **126**

Alaska Regional Guide

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REGIONAL GUIDE

FOR THE

ALASKA REGION

Covering Forest Service programs that affect the State of Alaska

November 1983

Alaska Region
U.S. Department of Agriculture
Forest Service
Federal Office Building
P.O. Box 1628
Juneau, Alaska 99802

PREFACE

The regulations implementing the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA), as amended by the National Forest Management Act of 1976 (NFMA), require the preparation of a Regional Guide and an Environmental Impact Statement for the nine Regions of the National Forest System. The Final Environmental Impact Statement and this Regional Guide are treated as combined documents (40 CFR 1506.4).

REGIONAL GUIDE

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Chapter 1
REGIONAL PLANNING

The primary purpose of this Regional Guide[1] is to provide national and Regional direction to the two National Forests within the Alaska Region for land and resource management planning efforts. (See Figures 2-1 through 2-3 in Chapter 2.) The Guide facilitates National Forest planning by providing Regional standards and guidelines for addressing major issues and management concerns and by displaying tentative resource objectives for each National Forest, based on objectives that were assigned to the Region as a whole in the 1980 National RPA Recommended Program. While the Guide ensures that a consistent approach to National Forest planning is followed throughout the Region, it allows the individual Forests considerable latitude in their formulation of National Forest Land and Resource Management Plans. The Guide also is intended to help coordinate management of the National Forest System in the Alaska Region with other Forest Service programs--programs that assist private landowners and State and local governments in managing and protecting their forest resources, as well as an extensive forestry research program.

PLANNING PROCESS

Regional planning takes place within the overall planning framework structured by the regulations of the Forest and Rangeland Renewable Resources Planning Act, as amended by the National Forest Management Act, and of the National Environmental Policy Act. The planning process is based on the 14 planning principles stated in the NFMA regulations (36 CFR 219.1); they are listed on page 1-2.

Forest Service planning is a continuous, iterative process carried out on three levels:

1. National--RPA Assessment and Program (covering both private and public lands)

2. Regional--Regional Guide

3. Local--Forest Land and Resource Management Plans for the National Forest System lands; State Forest Resource Plans developed by the

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[1]The NFMA regulations published September 30, 1982, changed the name of this Regional planning document from Regional Plan to Regional Guide. All references to this Regional planning document now read "Regional Guide."

NATIONAL FOREST PLANNING PRINCIPLES

1. Establishment of goals and objectives for multiple-use and sustained-yield management of renewable resources without impairment of the productivity of the land

2. Consideration of the relative values of all renewable resources, including the relationship of nonrenewable resources, such as minerals, to renewable resources

3. Recognition that the National Forests are ecosystems and their management for goods and services requires an awareness and consideration of the interrelationships among plants, animals, soil, water, air, and other environmental factors within such ecosystems

4. Protection and, where appropriate, improvement of the quality of renewable resources

5. Preservation of important historic, cultural, and natural aspects of our national heritage

6. Protection and preservation of the inherent right of freedom of American Indians to believe, express, and exercise their traditional religions

7. Provisions for the safe use and enjoyment of the forest resources by the public

8. Protection, through ecologically compatible means, of all forest and rangeland resources from depredations by forest and rangeland pests

9. Coordination with the land and resource planning efforts of other Federal agencies, State and local governments, and Indian tribes

10. Use of a systematic, interdisciplinary approach to ensure coordination and integration of planning activities for multiple-use management

11. Early and frequent public participation

12. Establishment of quantitative and qualitative standards and guidelines for land and resource planning and management

13. Management of National Forest System lands in a manner that is sensitive to economic efficiency

14. Responsiveness to changing conditions of land and other resources and to changing social and economic demands of the American people

States with Forest Service assistance for State and private lands; research plans

Management direction becomes increasingly specific as planning progresses from the national to the local level. In this structure, Regional planning is a pivotal process for conveying management direction from the national to the local level and for conveying information from the local to the national level.

National RPA Assessment and Program

Every 10 years, a comprehensive, nationwide assessment is made of the forest and rangeland renewable resources in the United States. Using information generated at the local and Regional levels, this RPA Assessment covers timber, range, water, wildlife and fish, outdoor recreation, and wilderness. Short- and long-range projections are made of future supply and demand for each of these resources. The findings are then used to help determine the desired level of future outputs from Forest Service programs. Alternative levels of outputs and associated costs are examined in the RPA Program, which is prepared every 5 years. Based on an analysis of these alternatives and consideration of public views, the Secretary of Agriculture selects a National RPA Recommended Program for the Forest Service. Included in this Program is the distribution of nationwide resource objectives among the nine Regions of the National Forest System. The Recommended Program and a Presidential Statement of Policy are transmitted to Congress, which may accept or revise the Statement of Policy. The final Statement of Policy and Program together guide the planning and development of future Forest Service budget proposals. Actual program implementation is directed by annual appropriations.

Regional Guide

Regional planning links the RPA Assessment and Program with local Forest and State planning. It plays a dual role by channeling management direction from the national to the local level and information from the local to the national level.

The Regional Guide communicates national and Regional direction for National Forest planning, as well as information pertinent to the development of State Forest Resource Plans and research activities. Specifically, the Regional Guide serves the following purposes:

1. It provides standards and guidelines for various management activities that may be carried out on the National Forests. These standards and guidelines specify the actual criteria to be applied to the management activities.

2. It provides planning direction for developing individual Forest Plans, including those issues or concerns raised at the national or Regional level that can only be assessed or resolved by the Forests. Planning direction essentially defers the final decision on an issue to the individual Forest, within limits established by the Region.

3. It displays the Regional RPA Program and distributes tentative resource targets among the individual National Forests. While RPA-assigned objectives for the Region as a whole are firm, individual National Forest objectives are merely used as the basis for one of the alternatives examined in the Forest planning process.

4. It reflects the general coordination of National Forest System programs, State and Private Forestry programs, and research programs.

This Regional Guide is based primarily on 1977 data. It is subject to change as new and better data on biological capabilities and on social, economic, and environmental effects become available through the National Forest and State planning processes. Local plans and other available information will be analyzed to develop better estimates of Regional capability. Using this information, Regional line officers will provide input into the nationwide RPA process; they are members of the Forest Service decisionmaking group that develops the National RPA Assessment and Program and ultimately negotiates with the Chief of the Forest Service for the Regional share of the RPA Program.

Local Plans

By collecting and integrating basic data on biological potential, resource inventories, and research problems, local plans (National Forest Land and Resource Management Plans and State Forest Resource Plans) are the building blocks for Regional and National planning. The National Forest and State Forest Resource Plans now being developed will play an important role in shaping the next RPA Program (in 1985) and the next RPA Assessment (in 1990).

National Forest land and resource management planning considers a broad range of reasonable management alternatives. To the extent practicable, Forest Plan alternatives reflect the full range of major commodity and environmental resource uses and values that could be produced from the Forest. All alternatives are formulated to provide different ways of addressing the major public issues, management concerns, and resource opportunities identified during the planning process. At least one alternative is designed to meet the Forest's tentatively assigned share of the 1980 RPA Program; others have resource outputs that are above or below the RPA Program levels. The emphasis in both the RPA Program and National Forest planning is on the future and how Forests can best be used and managed to meet people's needs.

Forest Plans ordinarily are to be revised on a 10-year cycle. However, some adjustment may be necessary following completion of each RPA Program update.

Tongass Land Management Plan (TLMP)

The Tongass Land Management Plan was implemented in April 1979 on the three areas of the Tongass National Forest. In December 1980, the Alaska National Interest Lands Conservation Act (the Alaska Lands Act) was passed. The legislative record shows that the Tongass Land Management Plan and its

associated data and Environmental Impact Statement were used extensively in preparation of portions of that legislation. The act validated many decisions made in the Plan and legislated some items that needed to be incorporated into the Plan.

The Tongass Land Management Plan will be revised to meet requirements of the NFMA regulations and the Alaska Lands Act after there has been an opportunity for Congress to respond to the report on the status of the Tongass National Forest required by section 706(b) of the Alaska Lands Act. The report is due to Congress in December 1985. Revision of the Plan is currently scheduled for completion in 1989.

Chugach Land Management Plan (CLMP)

The Chugach Land Management Plan (CLMP) preparation is in progress. It will be directed by this Regional Guide and will incorporate the Alaska Lands Act mandates. It will also recommend some assignments for the further planning areas identified during the RARE II study, as well as for the Nellie-Juan College Fiord Wilderness Study Area identified by the Alaska Lands Act.

Alaska State Forest Resource Plan

The Alaska State Forester is in the process of developing the State Forest Resources Program Plan. It will provide direction for the management of the Forestry Division of the Alaska Department of Natural Resources. The Plan will also form the basis for annual program budgets of the division. The Rangeland and Renewable Resources Planning Act of 1974 and the Cooperative Forestry Assistance Act of 1978 were responsible for formalizing State forest resources planning efforts in the Division of Forestry.

Program Development and Budgeting

By providing objectives, output targets, and standards and guidelines, the RPA Program, Regional Guides, and Forest Plans direct what should be done in the National Forest System over the next 50 years. They also include estimated costs of implementing the Plans, based on the best information available. The Plans and Guides are not developed to conform with annual budgets, but rather are the basis for annual Forest Service budgeting proposals. The rate of implementation depends on the funding and work force made available to the Forest Service through the annual Federal budgeting and appropriation processes.

The annual budgeting process provides an opportunity for the Forest Service to reflect current conditions and changes that may have occurred since the RPA Program was developed and to further refine program coordination for a specific budget year. Several budget levels, all based on the RPA Program, are prepared for National Forest System Regions, research stations, and State and Private Forestry programs. Budget proposals that deviate from the RPA Recommended Program are explained and justified. Budget proposals are firm commitments by these units to achieve a certain level of output targets at a specific cost. During the budgeting process, these proposals

are frequently adjusted because of changing conditions and administrative and congressional priorities. Such adjustments are within the scope of the Regional Guides and National Forest Plans. The actual appropriated budget becomes a firm contract of work for which the Forest Service is held accountable.

Fiscal year 1981 was the first year of the 1980 RPA Program. The distribution of fiscal year 1981 and 1982 funds was based upon existing National Forest Land and Resource Management Plans, the best cost opportunities, local demands and conditions, historical trends, and expected outputs. By fiscal year 1984, the Forest Service expects new National Forest Plans to play an important role in program and funding distribution.

REGIONAL ISSUES AND MANAGEMENT CONCERN

Two items were of particular importance in preparing the Alaska Regional Guide: the issues raised by the public and the Southeast Alaska Area Guide (1977). The process used to prepare the Alaska Regional Guide and Final EIS is outlined in Figure 1-1.

As depicted in Figure 1-1, the identification of public issues and management concerns was the driving force behind the planning process. Public issues are subjects or questions of widespread public interest relating to Forest Service management and identified by the public. Management concerns are issues or problems identified by Forest Service managers. Once identified, public issues and management concerns are treated the same.

The Regional planning interdisciplinary team prepared a preliminary list of issues from a review of 11 previous planning documents and from discussions with agency representatives from the State of Alaska. These issues were refined to seven major questions. A list of management concerns also was identified by Forest Service personnel.

The list of issues and concerns was distributed for public review and comment in a planning newsletter in February 1980. Public comments responding to the newsletter were reviewed and analyzed. Further efforts were made to contact other Federal agencies and Native corporations in May and June 1980. (See Glossary.) Because of the uncertainty of the final legislation regarding the Alaska Lands Act then before Congress and because of the impending expiration of the withdrawals under the Federal Land Policy and Management Act, the Regional planning process was suspended in June 1980.

The process began again immediately after passage of the Alaska Lands Act in December 1980. The interdisciplinary team met to reconsider the issues and management concerns. The public had commented on the adequacy of the original seven planning questions identified through responses to the February newsletter, and they had provided other issues and concerns, many of which were detailed or specific statements falling under one of the original seven headings.

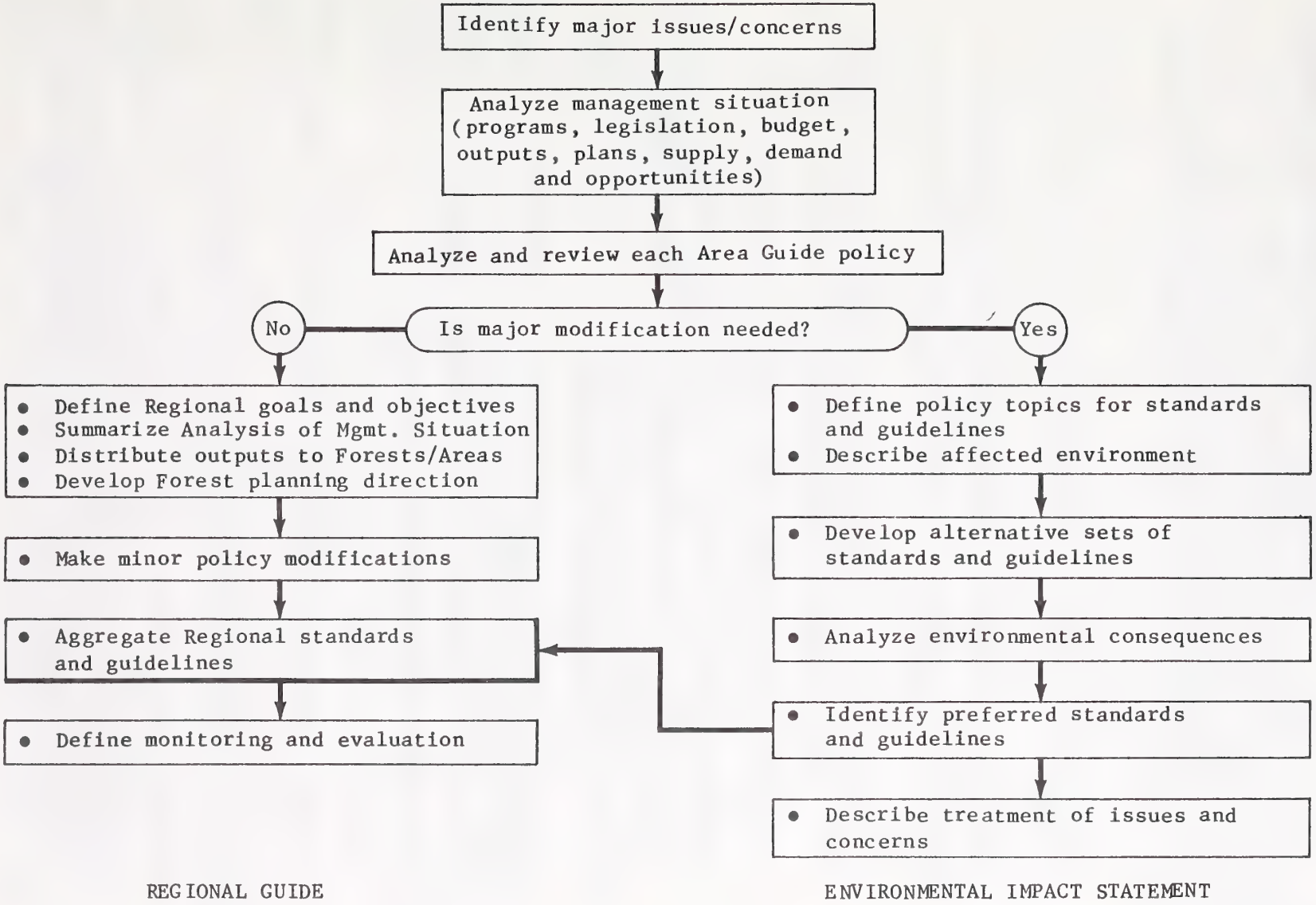
Identify major issues/concerns
Analyze management situation (programs, legislation, budget, outputs, plans, supply, demand and opportunities)
Analyze and review each Area Guide policy
Is major modification needed?
No
Yes
• Define Regional goals and objectives
• Summarize Analysis of Mgmt. Situation
• Distribute outputs to Forests/Areas
• Develop Forest planning direction
• Make minor policy modifications
• Aggregate Regional standards and guidelines
• Define monitoring and evaluation
• Define policy topics for standards and guidelines
• Describe affected environment
• Develop alternative sets of standards and guidelines
• Analyze environmental consequences
• Identify preferred standards and guidelines
• Describe treatment of issues and concerns
REGIONAL GUIDE
ENVIRONMENTAL IMPACT STATEMENT

Figure 1-1 The Role of the Southeast Alaska Area Guide in the Development of the Regional Guide and Environmental Impact Statement

A list of issues and concerns was developed from the Southeast Alaska Area Guide, from the summary of public comments on the February 1980 newsletter, from the summary of the May/June 1980 external coordination efforts, and from more recent correspondence and contacts with the public, with representatives of the State of Alaska, and with other Federal agencies. The issues were evaluated against the following criteria to determine which issues and concerns would be used to guide the preparation of the Regional Guide:

1. The issue affects or is affected by Forest Service activities; or the issue cannot be readily resolved without Forest Service involvement.

2. The issue is Regional in scope and cannot solely be resolved in either a Forest Plan or at the national level through the RPA process; and the issue can be at least partially resolved within the existing authority of the Regional Forester.

3. The issue involves significant resource conflicts; major economic, social, physical, or biological implications; or there is a high level of public interest in the issue.

The following eight issues were identified from the review and analysis:

1. Possible adverse impacts to fisheries from timber harvest

2. Possible conflicts between the harvest of old-growth timber and wildlife habitat

3. Designation and management of wilderness

4. Concern about how much timber production can be sustained on National Forest System lands

5. Concern about economic development and social stability

6. Development of energy and mineral resources

7. Changes in recreation opportunities and visual resources

8. Transportation connections between communities and management of potential transportation corridors

The following management concern was identified from the review and analysis:

A need to revise the Southeast Alaska Area Guide policies to conform to new legislation; to provide standards and guidelines for timber management, transportation and utility corridors, and air quality in accordance with the NFMA regulations; to permit more uniform application of policies on the ground; and to respond to public issues.

Disposition of Public Issues and Management Concern

A systematic process was used in determining how each issue or concern would be treated during the development of the Regional Guide. Figure 1-1 is helpful in describing this process. Note that the Southeast Alaska Area Guide forms the foundation for the Regional Guide standards and guidelines. The policies in the Area Guide were analyzed for their adequacy and the extent to which a modification or new policy would contribute to issue resolution.

If the intent of an Area Guide policy was correct, but minor clarification or elaboration were needed, then the modification would be made without detailed analysis in this Environmental Impact Statement. Those policies that needed major modification are analyzed in detail in the Final EIS.

As appropriate, treatment of the issues and management concern have been modified in response to public comments on the Draft Regional Guide and the Draft EIS.

The disposition of each major issue and the management concern, including its role in the Regional planning process, is described below.

Issue 1: Possible Adverse Impacts to Fisheries from Timber Harvest

There is public concern about possible adverse effects to anadromous fisheries from timber harvest operations. Some of these effects could be stream sedimentation, stream temperature changes, and instream debris. Adverse effects can be minimized, however, through the proper design and construction of roads, harvest units, and facilities and through implementation of existing policies and standards and guidelines.

Standards and guidelines in the Regional Guide and those Forest-level policies in the Area Guide for the fish, timber, and soil and water elements provide protection for anadromous fish habitat. Standards and guidelines in the National Forest Management Act and direction in the Alaska Lands Act also provide for habitat protection. After an analysis of the situation, it was concluded that no major changes in Regional-level management direction are necessary.

Issue 2: Old-Growth Timber and Wildlife Habitat

The Forest Service recognizes the concern, expressed by the Alaska Department of Fish and Game and by some individuals and organizations, that harvesting old-growth forest may have a serious adverse effect on wildlife species dependent on this habitat type for all or part of their life cycle. This concern has been particularly strong with respect to Sitka black-tailed deer.

The issue centers around a belief that harvest on any old-growth stands will be harmful, and that under present harvest levels and practices, the old-growth timber stands that remain will be inadequate to sustain optimum populations of such species. It is believed also that old-growth stands

are nonrenewable in areas where timber harvest has occurred. In the case of Sitka black-tailed deer, the primary concern is retention of critical winter range, which is particularly important during severe winters of deep snow accumulation.

The Forest Service and other land managers have many options in the management of Alaska's forests, such as retaining various proportions of the deer range utilized in severe winters; retaining stands by locality that meet specific community needs; manipulating second-growth stands to stimulate deer browse; lengthening the harvest rotation in some areas and maintaining a 100- to 125-year rotation age in others; and increasing the size of individual timber harvest units in some watersheds to offset reduced harvest areas in other watersheds in the short run. At issue, then, is where, when, and how much of each option to exercise, what the resulting size and pattern will be, and the long- and short-term effects on wildlife.

Some of the public believes that there is no satisfactory strategy because the timber level set by the Alaska Lands Act is not achievable, considering the amount of land that has been allocated to wilderness. Congress, after carefully considering all available information, determined that 4.5 billion board feet per decade was possible on the land base that they allocated and subsequently made a commitment to fund the investments needed. The supply and demand assessment reporting system established in the act will allow Congress to make whatever correction it feels is necessary.

The relationship between some species of wildlife, such as Sitka black-tailed deer, bald eagles, and bears, and old-growth forest habitat was identified during the development of the Southeast Alaska Area Guide and the Tongass Land Management Plan. The resource management policies contained in the Area Guide are still in effect and provide direction to the Forest level of planning on the Tongass National Forest. These policies give management direction for all wildlife, including those dependent on old-growth forest habitat. The Tongass Land Management Plan allocates 16.9 million acres of National Forest System lands[2] for multiple-resource uses, including wildlife and fish habitat. About 1.6 million acres of commercial forest land, much of which is old-growth habitat, are in a permanent timber production exclusion status, because they are a part of the total 5.6 million acres of wilderness and National Forest National Monuments. The Tongass Land Management Plan also places more than 500,000 acres of commercial forest land in Land Use Designation (LUD) II and further states that no timber harvest will be allowed in LUD II areas, except for timber salvage necessary to prevent significant damage to other resources.

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[2]Includes additions to the National Forest System as a result of the Alaska Lands Act.

Of the 16.9 million acres on the Tongass National Forest, 5.7 million acres are commercial forest land. Of this, 3.7 million acres are not programmed for timber harvest, since they are included in wilderness, LUD II, unregulated, and technologically marginal stands. Approximately 270,000 acres of commercial forest lands have been reserved for resource protection (for example, critical winter deer range, bald eagle nesting trees, and highly scenic views), so that, in the actual timber sale planning process, specific areas may be identified and retained. Under the Tongass Land Management Plan and the Alaska Lands Act direction, management plans schedule up to 18,000 acres per year for harvest, resulting in approximately 3.1 percent of the commercial forest land being harvested over the 10-year plan period. If this harvest rate were to continue for the rotation period of 100 years, 1.8 million acres would be harvested, which is 11 percent of the total Tongass National Forest acreage, or 31.6 percent of the total commercial forest land.

The Tongass Land Management Plan will be revised after Congress has an opportunity to respond to the reports on the resources of the Forest required by section 706 of the Alaska Lands Act. The habitat needs of the wildlife and fisheries resources will be considered and included in the revision process.

Each timber sale is planned by an interdisciplinary team on a site-specific basis. This team is composed of a number of resource specialists working in coordination with other agency personnel, such as the Alaska Department of Fish and Game. The team's role is to identify alternative timber sale layouts and associated support facilities. The intent is to provide sound resource management. When resource conflicts cannot be avoided, they are reconciled to the extent possible through proper sale layout design and specification of mitigation measures. During timber sale implementation, these specialists are available at the request of the sale administrator to ensure that the plans and the actual sale execution are properly accomplished.

Status of Current Research. Research conducted jointly by the Alaska Department of Fish and Game and the Forest Service on Admiralty and Chichagof Islands describes the relationship of Sitka black-tailed deer to old-growth forest and its dependence on this habitat during the winter. The large crowns and heavy limbs of the trees in the old-growth forest act as snow interceptors during heavy winter snowfalls and prevent accumulations of deep snow cover on the forest floor. The lack of deep snow allows the deer easy access to understory food plants and conserves energy during the critical winter period.

Information from the Queen Charlotte Islands in British Columbia, Canada, and from other islands in Southeast Alaska (Sokolof, Liesnoi, and Level Islands), where maritime climate predominates, suggests that deer survive in habitat that has been extensively clearcut. Periodic severe winters may, however, seriously affect deer even in those situations. A recent report prepared by the British Columbia Ministry of Forests indicates that Sitka black-tailed deer populations on the Queen Charlotte Islands may be increasing, even though clearcutting of old-growth forests has been occurring for decades. Many plants on the island are being severely

overbrowsed by a large number of deer. However, it must be noted that Sitka black-tailed deer were introduced to Queen Charlotte Island, where there are no natural predators, hunting pressure is light, and the climate is mild compared to the northern half of the Alaska panhandle.

The Sitka black-tailed deer also was introduced to Kodiak Island in 1934. Kodiak Island has never had any old-growth timber cover comparable to that in Southeast Alaska; however, the present population is reported to be high.

The fact that some small islands that have been heavily clearcut have high deer populations now does not mean that old-growth forest is poor habitat or not required for deer survival during the winter. Level, Sokolof, and similar islands are, as a result of timber harvest, in the early vegetative seral stages, which are productive for deer forage. Deer populations should do well on these islands, considering that the last 5 to 10 years have had comparatively mild winter snowfall. Following a harsh winter season with deep snow or closure of the conifer canopy that shades out the forage plants, deer populations may decline.

In some areas, predation appears to be a cause in reducing the population of deer in Southeast Alaska. The effects of predation on deer populations in Alaska are not well-documented. However, some obvious variations exist between those ranges where wolves occur and the wolf-free islands northwest of Frederick Sound. Only one study to date has dealt with this topic and was conducted on Coronation Island in Southeast Alaska. In that study, wolves were introduced to the island when deer populations were quite high and together with an overgrazed habitat combined to drastically reduce, if not eliminate, the deer population. Thus, that study showed that wolves can be a key factor in limiting deer numbers on small islands.

Extensive study of predator and prey relationships in old-growth versus second-growth timber stands has not been done. However, initial studies on Vancouver Island suggest that, as stands of old-growth become small and fewer, deer will congregate in these stands during heavy snow years. Predators, such as wolves, can concentrate in these areas and conceivably have a greater than normal effect on the deer population.

In addition to identifying the habitat characteristics that are required for deer and their ability to adapt to environmental changes, a complete analysis of predator and prey relationships (wolves and deer) is needed.

Proposal: Do Not Harvest High-Volume, Old-Growth Stands of Timber. The Alaska Department of Fish and Game has stated that harvesting old-growth forests by clearcutting causes a permanent loss of habitat for some species of wildlife, such as black-tailed deer, mountain goat, and Vancouver Canada goose. The Department states that under a 100- to 125-year rotation schedule, old-growth forest is an irretrievable resource, and such a schedule will cause a permanent reduction in those species dependent on this habitat. The State Boards of Fisheries and Game, in a joint resolution adopted in December 1980, requested that "timber stands of more than 50,000 board feet per acre not be cut and other volume classes be cut only in proportion to their occurrence." (See Appendix E.)

Meeting this request in combination with supplying 4.5 billion board feet per decade of sawlogs means that more acres of forested lands would be harvested annually. Over an entire rotation, the total road network developed under this proposal would not greatly differ from the network that would be developed under the current management approach. What is different, though, is that a larger proportion of the network is developed now rather than later. Instead of entering an average of 18,000 acres, approximately 22,000 to 27,000 acres would be scheduled for harvest per year. There will be 83 to 166 miles of additional roads per year, at an average annual cost of $14 million to $28 million (in 1981 dollars).

The increase in the rate of development of forest roads means relatively more access for hunting and recreation and a greater potential for disturbance to wildlife during the breeding season. Under this proposal, the size of the area for roadless recreation experience is more quickly reduced, and the effects of timber harvesting activities may be more visible from travel routes.

Proposal: Very Large Clearcuts. It has been suggested also that timber harvesting should be permitted over larger areas (for example, an entire watershed), so that operating in lower volume stands will be more cost effective and so that other complete drainages can be left intact. The size of cutting units is limited by the National Forest Management Act to 100 acres in Alaska, except where larger cutting units will produce a more desirable combination of benefits. (See Maximum Size of Created Openings in the Environmental Impact Statement.) Such factors as topography, relationship of units to other natural or artificial openings and proximity of units, effects on water quality and quantity, visual absorption capability, and effect on wildlife and fish habitat will be considered when evaluating the appropriate size of a cutting unit.

While economies of scale might be realized with very large clearcuts, the age structure within the watershed would be less diverse. Another consideration in the evaluation of an exception to the 100-acre limit is that when more than 25 to 30 percent of a drainage is cut over, streamflow generally increases. This can cause damage to stream channels, which can result in increased soil erosion and sedimentation, reduced water quality, and damage to fish habitat. Scheduling of timber harvesting in a drainage would have to be spaced over time to avoid this possibility.

Within the policy framework shown in this Guide, the Forest Service in Alaska has the option of designing very large cutting units when an interdisciplinary analysis shows that more desirable effects can be achieved. They will be analyzed on an individual basis.

Governor's Decision Memorandum. The Alaska Department of Fish and Game has recently expanded its concept of areas important to wildlife to include ecosystems. This new approach culminated in a June 10, 1981, decision memorandum that was signed by Governor Jay Hammond of Alaska. The memorandum set a selected course of action to address the wildlife and logging relationships in Southeast Alaska.

Of the various options examined, the Governor stated:

> Seek agency cooperation and industry support for preserving adequate stands of high-volume, old-growth timber to provide healthy, viable wildlife and fish populations to meet recreational and subsistence use requirements in areas selected for cutting, and work with the public, with industry, and with Forest Managers to maintain the natural diversity of plant and animal communities throughout the forest as much as possible. . . .

The Forest Service recognizes the importance of the high-value wildlife and fish areas and will work closely with the appropriate agencies of the State to address mutual concerns in habitat and timber management. (See Appendix J for the complete text of the Governor's decision memorandum.)

Current Programs to Resolve the Issue. The Forest Service has taken the following steps to better define the deer/habitat relationships in Southeast Alaska and to provide perspective to the problem.

1. It has joined in a technical task force with the State Department of Natural Resources, the State Department of Fish and Game, SEALASKA Corporation, the Wildlife Society, and the Society of American Foresters to develop recommendations for various State, Federal, and Native corporation resource managers for managing the wildlife and timber resources in forested areas in Coastal Alaska.

2. It continues to work with the Alaska Department of Fish and Game to identify areas of agreement, to resolve areas of disagreement, and to maintain a high level of professional interaction at all times.

3. It continues in the development and refinement of a Wildlife Habitat Relationships Program for use as an evaluation and consequence analysis tool by resource managers.

4. It has initiated an aggressive program to identify opportunities to improve wildlife habitat through management of second-growth stands. The Forest Service believes that the synergistic second-growth timber/wildlife program initiated in fiscal year 1982 will enable the Region to harmoniously accomplish the second-growth timber and wildlife management objectives. By fiscal year 1984, the Region will have completed 4 to 6 second-growth test treatment projects, which were designed to demonstrate the effectiveness of a variety of silvicultural prescriptions to accomplish second-growth timber and wildlife management objectives.

5. It continues administrative studies and cooperative research with universities, the National Marine Fisheries Service, the Fish and Wildlife Service, and the Alaska Department of Fish and Game to increase knowledge of critical factors affecting the well-being of wildlife and fisheries and their relationship to timber management activities. The Southeast Alaska Timber/Wildlife/Fisheries Modeling effort will continue to be used as a forum for information

exchange, identification of inventory and research needs, and evaluation of resource interactions in management applications.

6. In cooperation with the Alaska Department of Fish and Game, the Forest Service is identifying key wildlife habitats on the Tongass National Forest that require priority when selecting retention areas on planned timber sales.

7. It continues in the implementation of wildlife habitat management policies established in the Southeast Alaska Area Guide (according to direction given in this Regional Guide).

By fiscal year 1984, the Forest Service, in cooperation with the Pacific Northwest Forest and Range Experiment Station and the State of Alaska Department of Fish and Game, will have:

1. Developed and begun field-tests on a simulation model to define deer habitat needs to support the desired number of deer to meet public demand

2. Developed and begun field-tests on a timber/wildlife/fisheries trade-off model

3. Increased forest research programs to focus on wildlife/forest habitat relationships

4. Developed a standardized monitoring system to evaluate and compare the effectiveness of the silvicultural prescriptions in meeting both timber and wildlife habitat objectives

5. Established control sites and implemented a habitat monitoring program

6. Started preproject planning for additional projects during the next 5 years

7. Developed a coordinated program with research to identify their role in the second-growth program

8. Initiated planning for large-scale, second-growth treatments, using Knutson-Vandenburg funds

The Forest Service believes the above steps will contribute to the resolution of the old-growth/wildlife issue.

Issue 3: Designation and Management of Wilderness

There is public concern about the amount of wilderness to be designated in Alaska and how wilderness areas should be managed.

The Alaska Lands Act established National Forest Wilderness in the Tongass National Forest. The impact of wilderness designations on the timber,

fishing, and tourism industry in Southeast Alaska is to be included in the status reports submitted to Congress, as required by section 706(b) of the act.

Management policies in the Regional Guide reflect the Forest Service policy changes necessary to comply with the Alaska Lands Act and the Wilderness Act of 1964. Wilderness studies are being conducted on approximately 5.3 million acres of the Chugach National Forest, and further management guidelines will be prepared as part of the Forest land management planning process.

Issue 4: Timber Production

The broad issue of timber supply centers on three interrelated public concerns. These include the relationship between newly acquired State and Native lands and the National Forest System lands in meeting timber demands; implementing the principle of nondeclining even-flow timber yield versus departure from that principle; and log exports versus local processing (involves local employment).

Departure from nondeclining even-flow will be considered at the Forest planning level. The concern with local processing is also considered beyond the scope of this Guide, as existing regulation and historical policy have restricted large-scale log export of most species from the National Forests in Alaska.

In Southeast Alaska, the timber industry is concerned about the supply of wood. Others question the validity of planning assumptions used in the analysis for the Tongass Land Management Plan. The public wants more information. Specifically, it wants the Forest Service to demonstrate exactly how the timber target will be accomplished--that is, where, when, and how much. Those who want a lower timber target ask either for assurance that the quality and quantity of other resources will be protected or for a more conservative timber target. Those who favor a higher timber target believe that future analysis will show that more timber can be supplied.

Congress struck a balance between wilderness and jobs when it passed the Alaska Lands Act. Congress reasoned that the many resources on the Tongass could be protected and, at the same time, the timber supply could be sustained. In the process, they considered economic and budgetary needs and provided special funding provisions to finance the necessary activities to maintain the mandated timber supply.

Section 705(a) of the Alaska Lands Act establishes a timber supply from the Tongass at 4.5 billion board feet measure per decade. This is consistent with the 450 million board feet measure annual allowable sale quantity determined in the Tongass Land Management Plan. The 450 million board measure level represents sawlog volume. Volume from utility logs was not included in this calculation because of the difficulty in planning for the utilization of unmerchantable material. Wide variability in use is expected because of differences in individual timber stands and changes in market

conditions. The need for additional investments for forest access, intensive forest practices, and advanced harvest technology was recognized by Congress. These investments are needed to manage a substantially larger share of the economic and technologically marginal forest lands component than in the past. Planned investment levels are shown in the Tongass Land Management Plan, as well as the Timber Supply and Demand Reports for 1981 and 1982. These investments are further validated under section 705 of the Alaska Lands Act, which makes available $40 million annually or whatever amount is deemed necessary to maintain a timber supply from the Tongass National Forest at 4.5 billion board feet measure per decade.

Chapter 3 of the Guide displays the Tongass sawlog target as tentatively programmed over the plan period. To monitor unexpected changes related to the Alaska Lands Act mandate, Congress also provided for a reporting system to describe and forecast the changes in timber demand and supply on the Forest. These reports will require the Forest Service to periodically reexamine many of the planning assumptions made in the Tongass Land Management Plan. (See Appendix D for a discussion of the Alaska Lands Act sections 705 and 706 reports.)

The first two reports to Congress required by section 706(a) of the Alaska Lands Act have been completed. Succeeding reports will continue to monitor and evaluate the timber supply and demand situation. The Tongass Land Management Plan will be updated to meet requirements of NFMA regulations after Congress has had the opportunity to respond to the report on the status of the Tongass required by section 706(b) of the Alaska Lands Act.

Updates to the Tongass Land Management Plan will incorporate direction from Congress and the most recent analysis from the reports into its analysis of the management situation. (See Chapter 3 of the Guide, Forest Planning Direction, for Regional policies on the Tongass Land Management Plan implementation and update.)

Issue 5: Concern About Economic Development and Social Stability

Public concern was expressed about the support Forest Service programs provide to local employment and social stability. There was concern for the balance of local needs against national and Regional demands for commodity and amenity-related programs.

Area Guide policies as revised in the Regional Guide address this concern. The Alaska Lands Act also provides direction.

Issue 6: Development of Energy and Mineral Resources

There is public concern about the need for development of energy and mineral resources in Alaska; the potential adverse environmental effects of mineral development; and the opportunities and problems that mineral development would present to local communities.

Regional policies from the Southeast Alaska Area Guide provide for mineral exploration and development with environmental safeguards and substantial

public involvement in the environmental assessment process. The Alaska Lands Act mandated mineral exploration and development.

The public scoping process showed that congressional withdrawals under the Federal Land Policy and Management Act were also a concern under the energy and minerals issue. The Alaska Lands Act addressed this issue by designating wilderness. Analysis led to the conclusion that, with the withdrawal question resolved, existing policy was sufficient to address this issue at the Regional level.

Issue 7: Changes in Recreation Opportunities and Visual Resources

There is public concern about changing recreational opportunities and visual resources in areas primarily outside of wilderness. (See Chapter 2, Summary of the Analysis of the Management Situation.)

Alternative standards and guidelines develcped for the policy topics in the EIS were evaluated for their ability to alleviate effects of development on recreational opportunities and visual resources. (See Chapter 4 of the EIS.) Forest Plans and project plans will provide detailed direction for implementation of the policies in the Regional Guide.

Issue 8: Transportation Connections Between Communities and Management of Potential Transportation Corridors

Two issues of transportation seem to be very active in people's minds: transportation connections between communities, and the land management policies of National Forest System lands along potential transportation corridors. Related to these issues is the increasing concern of the public over the size, location, and environmental and social effects of the infrastructure needed to support mineral and energy development. This concern will be addressed in the Forest and project planning process.

The Forest Service, in the course of developing a transportation system to support land management plans, has the ability to help facilitate community connections in many situations, particularly between the smaller communities of Southeast Alaska. The State of Alaska and communities involved have a strong interest in these connections, especially from a community development and road operation and maintenance point of view. Connections between existing or emerging communities are not made by the Forest Service without participation and collaboration of State and local governments, communities, and affected individuals.

Transportation corridors usually involve construction of roads and utility lines along major rivers or the inland waters. Those corridors with high fisheries, wildlife, estuarine, and other values pose conflicts with the construction and usage of major transportation systems. Alternative standards and guidelines were proposed to address this issue and are analyzed in the EIS. The State has identified several natural transportation corridors in Southeast Alaska.

Management Concern: Update of the Southeast Alaska Area Guide

The Southeast Alaska Area Guide, which has served to guide Forest Service activities since 1977, needs revision to reflect new legislation, to permit more uniform application on the ground, and to respond to public issues.

Public comments during public participation activities for the Regional Guide identified implementation and monitoring as an issue. The concern also surfaced in contacts made with other Federal agencies, State agencies, and Native corporations. In essence, reviewers said that the Forest Service develops good plans and policies, but these appear to get lost in the implementation process.

The Forest Service and the public are strongly supportive of the Area Guide as a policy document and of the process used to develop it. The majority of public respondents to the Draft Regional Guide commented that the total Area Guide should be Regional policy. Many respondents thought that the phrase "referred to Forest planning" when associated with a particular policy meant that the policy was to be eliminated. This is not the case. In essence, all Area Guide policies have been retained. The Regional Guide makes clear which level of the Forest Service organization is responsible for maintaining each policy. Area Guide policies that are broad in scope have been adopted as Regional standards and guidelines. Other Area Guide policies have been retained as standards and guidelines for the Tongass and Chugach National Forests. Only those policies that are clearly out of date, such as those guiding the development of the Tongass Land Management Plan from 1977 through 1979, have been eliminated. (Initiation of amendments or revisions to Forest-level standards and guidelines may be made through the Forest planning process.)

Some policies have been modified. The first reason for modification is legislation that directs the Forest Service to do something specific. Other modifications occurred after evaluation of alternatives to the standards and guidelines discussed in the EIS. (See the next section.) The final cause for modification is to make the policy easier to implement. In response to public comments and a concern for maintaining the specificity of the Area Guide, each policy modification proposed in the Draft Regional Guide has been reexamined. When appropriate, the original language of Area Guide policies has been retained. Appendix B of the Final EIS shows the disposition of each Area Guide policy. Appendix C of the Final EIS contains letters that are representative of all public comments.

Major Changes for the Standards and Guidelines

Alternatives were proposed and evaluated for the standards and guidelines for eight management practices, as required by the National Forest Management Act regulations. As a result, changes were made in some Area Guide policies in the Regional Guide. Major changes or additions (for example, for air quality) are proposed through the Environmental Impact Statement process for the following eight categories of management practices:

1. Appropriate harvest cutting methods

2. Maximum size of created openings

3. Dispersal and size variation of tree openings created by even-aged management

4. State of vegetation that will be reached before a cutover area is no longer an opening

5. Management intensity

6. Utilization standards

7. Transportation and utility corridors

8. Air quality

Summary of Areas of Concern

In summary, eight issues and one management concern were identified to guide preparation of the Regional Guide. When evaluated against existing policies from the Southeast Alaska Area Guide and the Alaska Lands Act, three areas of concern require major policy changes or clarification of present policy to resolve:

1. Transportation connections between communities and management of potential transportation corridors

2. Need to revise the Southeast Alaska Area Guide to conform to National Forest Management Act requirements

3. Conflict between harvest of old-growth timber and wildlife habitat

Alternative policies were developed and analyzed in the EIS to address the first two issues. The Forest Service is working to resolve the old-growth timber issue. For Regional research studies and policies, see Chapter 5 and regionwide wildlife standards and guidelines in Chapter 3. Alternatives to the required NFMA policies presented in the EIS have been evaluated for their consequences to wildlife. (See the EIS, Chapters 2 and 4.) Appendix B of the EIS displays Regional standards and guidelines and the disposition of all Area Guide policies. Since new wildlife policies in the Guide were adopted to improve analysis and implementation of existing Area Guide wildlife policies, they have not been treated as actions with significant environmental impacts and, therefore, are not discussed in the Final EIS.

Chapter 2

SUMMARY OF THE ANALYSIS OF THE MANAGEMENT SITUATION

OVERVIEW

Many factors, such as laws, policies, programs, and budgets, contribute to and affect management direction. However, the extent of changes that can be made in management direction is limited by what is physically possible within the existing natural resource base. Therefore, the analysis of the management situation requires determining what goods and services--and how many--the planning area covered by the Regional Guide can supply in response to society's demands. This chapter describes the Regional setting in which the proposed standards and guidelines will be implemented. First, environmental characteristics of the entire Alaska Region are presented. This is followed by a discussion of the individual natural resources of the Region.

ENVIRONMENTAL SETTING

The Alaska Region encompasses the entire State of Alaska, which is approximately 365.5 million acres, 22.7 million acres of which are National Forest System lands. (See Figure 2-1.) The State is divided into three geographical zones and includes two National Forests, the Chugach and the Tongass. (See Figures 2-2 and 2-3.) The three zones are:

1. Southeast. The entire Alaska panhandle, from Dixon Entrance to Icy Cape, which includes all of the Tongass National Forest (16.9 million acres)

2. Southcentral. That area beginning at Icy Cape and extending to the Alaska Range along the southwestern coast and out the Aleutian Chain; within this area lies the Chugach National Forest (5.8 million acres[1])

3. Interior. The area that is north of the Alaska Range, that is, the remainder of the State. The Interior of Alaska has no National Forests.

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[1]Revised following the signing of the 1982 Chugach Natives, Incorporated, Settlement Agreement.

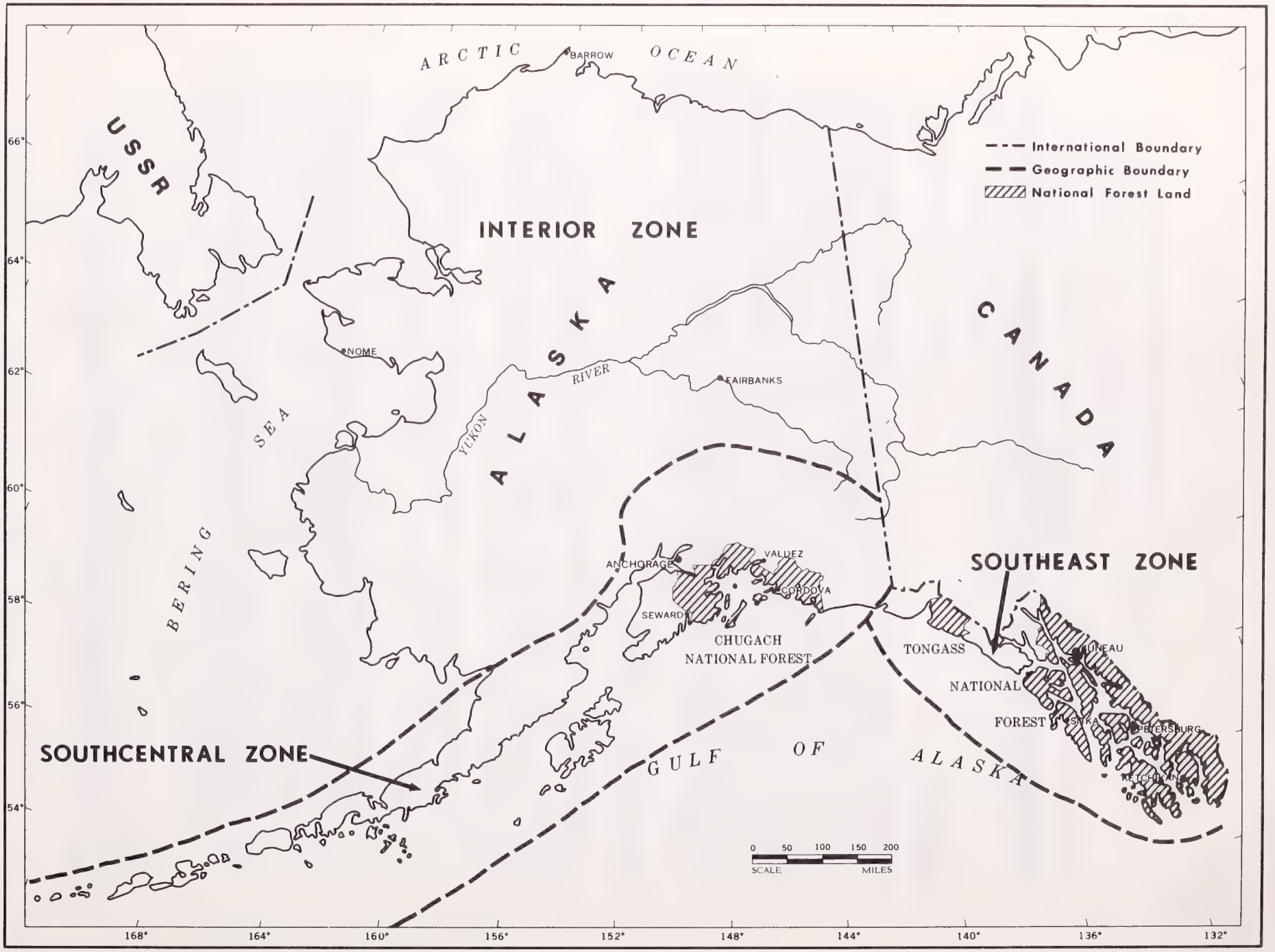

Figure 2-1 The Alaska Region

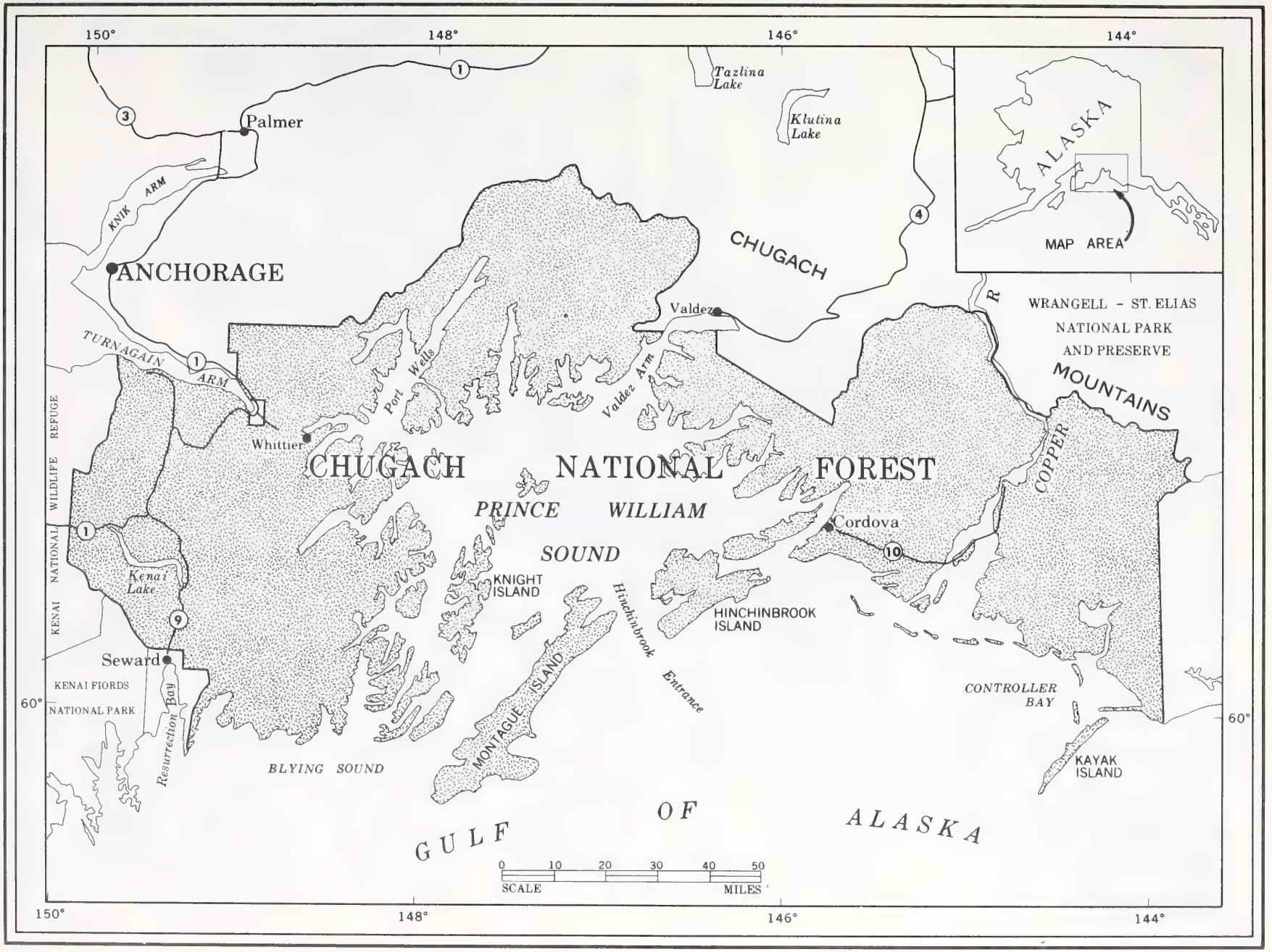

Figure 2-2 The Chugach National Forest

Figure 2-3 The Tongass National Forest

Alaska's major physiographic divisions are the Pacific Mountain and Rocky Mountain Systems, and Intermountain Plateaus (Wahrhaftig, 1956). All National Forest System lands in Alaska lie within the Pacific Mountain System. This system is an arcuate belt of two parallel mountain ranges separated by intervening lowlands. The northern arc includes the Coast Mountains and the Alaska and Aleutian Ranges. The southern arc consists of the Kodiak, Chugach-Kenai, Chilkat-Baranof, and Prince of Wales Mountains. These two ranges come together to form the St. Elias Mountains. The intervening lowlands contain the Cook Inlet-Susitna, Copper River, and Kupreanof Lowlands. The Chugach National Forest encompasses the Chugach-Kenai Mountains and portions of the Gulf of Alaska Coastal Section. The Tongass National Forest consists of the Coast, Chilkat-Baranof, and Prince of Wales Mountains and the Kupreanof Lowland.

The landscape of the National Forests in Alaska has been shaped largely by glaciation, resulting in landforms with an abundance of very steep slopes and U-shaped valleys. Unconsolidated soil materials include glacial till, volcanic sediments, alluvium, colluvium, residium, and organic matter. Fine-textured marine and lake deposits occur on valley bottoms and lower hillsides.

Alaska contains four major climatic zones: Maritime, Transitional, Continental, and Arctic (Searby, 1965). National Forest System lands in Alaska are influenced by all but the Arctic Zone.

In the Maritime Zone, water is the major influence. This zone includes Southeast Alaska and the coastal land and islands in the Gulf of Alaska. This zone exhibits heavy precipitation, cool summers, and warm winters. Annual precipitation ranges from 40 to 220 inches. Twenty percent of the precipitation at lower elevations and nearly 100 percent at higher elevations comes as snow. Temperatures range from the low 20's in winter to the low 70's in summer. Frequent cloudiness and fog are common.

The Transition Zone consists of a band of varying width between the Maritime and Continental Zones. Weather is variable; it may be Continental, Maritime, or a combination of the two. On the average, temperatures are more extreme than in the Maritime Zone, but less extreme than in the Continental Zone. Precipitation amounts in the Transition Zone also fluctuate between the levels in the two zones.

The Continental Zone is inland from the Maritime Zone. Annual precipitation is light, summers are warm, and winters are cold. Annual precipitation ranges from 10 to 80 inches. Fifty percent of the precipitation is in the form of rain. Temperatures range from -30° F in winter to the high 70's in summer.

Vegetative types are determined by climatic and edaphic factors. Common vegetative types include spruce-hemlock, spruce-birch, black spruce, muskeg, alder thickets, cottonsedge and watersedge tundra, Aleutian meadow, and Aleutian and barren heath.

Alaska's vegetative types are related to seven major ecological regions. These regions are the Arctic tundra, Brooks Range, Bering tundra, Yukon parkland, Alaska-Aleutian Range, Coastal trough, and Pacific forest.

RESOURCE ELEMENTS

In this Regional Guide, all Forest Service activities are grouped according to 16 elements, 10 of which represent individual resources. The individual resources are soil, air, and water; fish; wildlife; estuaries and tidal meadows; timber; agriculture and range; minerals and geology; recreation; wilderness; and cultural resources. The remaining 6 elements represent types of program support necessary to maintain and facilitate outputs of several or all resources. These support elements are human and community development; transportation; facilities; lands; pest management; and protection. Each resource is discussed in terms of current use and a set of assumptions about conditions that will affect future supply and demand for that resource.

Human and Community Development

Current Situation

Forest Service program outputs are significant in maintaining the natural resource economic base within communities, as well as in providing subsistence uses and leisure time opportunities and facilitating Alaskan lifestyles. Often, however, these considerations are in conflict between affected user groups at the local and national level. Alaskan needs must be balanced against national resource demands and international considerations, such as the balance of trade.

In addition to resource-oriented programs, the Forest Service provides other programs that directly contribute to community well-being, such as cooperative fire protection, young adult and senior citizen employment, and environmental education.

The ability of the National Forests to supply resources to meet future national and local demands depends on resource capabilities, available budgets, suitable markets, and other socioeconomic characteristics. Such characteristics as population growth, age distribution, economic growth and diversity, personal income, and employment can be directly correlated to resource demands.

The Alaska Department of Labor has estimated that Alaska's total population in 1980 was 400,331. This represents a 37-percent increase over the 1970 population. Although this is one of the fastest growth rates of any of the States, Alaska still has the smallest population density of any State, with slightly more than one person for every 2 square miles. Two-thirds of Alaska's population live in Southcentral Alaska, and 50 percent of that population is concentrated in Anchorage, Alaska's largest city.

The 1979 data indicate that Alaska's age and sex composition is similar to the overall United States profile, but the median age is younger (23 in Alaska, 28 in the United States), and males predominate (54 percent of total population).

Native populations (Indians, Eskimos, and Aleuts) make up 17 percent of Alaska's total population. Three Indian tribes, the Tlingit, Haida, and Tsimshians, inhabit Southeast Alaska. Athabascan Indians live primarily in the Interior of Alaska. Eskimos inhabit the coast of mainland Alaska, from the Bering Sea and Arctic coastlines to Prince William Sound in South-central Alaska. Aleuts generally live on the westernmost third of the Alaskan Peninsula and on islands in or near the Aleutian Chain.

Since 1965, Alaska's population and economic growth have increased substantially in relation to the rest of the Nation. Approximately 72 percent of State and Regional population growth rates is attributable to net migration of younger age workers and their families and the other 28 percent to natural population increases.

Southcentral Alaska has experienced rapid economic growth corresponding to increased industrial diversification and reduced dependence on seasonal employment. This area also shows the greatest growth in real and per capita income. An increase in employment in sectors related to natural resources and the export of manufactured products and services (basic employment) stimulate employment in support industries (nonbasic employment). Basic and nonbasic employment in Southcentral and Southeast Alaska are expected to increase through 1990. The government is presently the leading employer, accounting for approximately 30 percent of the State's total employment.

In 1980, employment related to renewable resources development (fish and timber industries) was 7 percent of total nonagricultural base employment; employment related to nonrenewable resources was 6 percent. Renewable and nonrenewable resource-related employment in the year 1990 is estimated to be 3 to 4 percent and 4 to 5 percent, respectively, of the total employment base. The remaining employment in the Region includes government, trade, construction, transportation, communications, public utilities services, and some manufacturing. Tourism shows the greatest projected growth rate, followed by the timber and fishing industries.

Over the last decade, Southeast Alaska timber employment levels have fluctuated, with harvest levels roughly following market trends. Employment levels ranged from an annual peak of 3,322 people in 1974, a year of boom market conditions, to a low of 2,346 in 1981. (This does not account for low employment levels in 1978-79 as a result of a labor strike at the Louisiana Pacific Company mill in Ketchikan.) Historically, the timber industry has represented 10 to 14 percent of the total nonagricultural wage and salary employment in Southeast Alaska, where the majority of timber activity occurs. Forestry employment is an important, but not major, component of the total Southcentral Alaska economy. Projected employment to the year 1990 ranges from 385 to 585 persons, depending on overall economic growth in the area. The low estimate assumes current levels of harvest in the year 1990.

Alaskan lifestyles are characterized by remote living conditions, reliance on natural resources for subsistence, and a strong orientation to the out-of-doors for employment and recreation. Perhaps nowhere else in the National Forest System do management policies and practices affect a Region and its communities to the extent that activities on the Tongass National

Forest affect Southeast Alaska. Southeast Alaska is geographically isolated, cut off from the rest of the continent by an imposing, nearly impenetrable mountain barrier. Communities cling to narrow coastal shores. In the entire Southeast region, only seven communities--Thorne Bay, Craig, Klawock, Haines, Hyder, Skagway, and Hydaburg--are linked to another community by roads. Yet, while geography and the lack of development isolate many communities from each other, from the rest of Alaska, and from the continental United States, Southeast Alaska is a cohesive environmental and social unit. The result is a lifestyle characterized by neighborliness, self-sufficiency, and a willingness to get involved in community affairs. Many of the hazards of modern life, such as overcrowding and excessive regulation, are uncommon. The land and sea are the chief sources of recreational opportunities. Many residents and most communities organize annual activities around such key events as the summer salmon derby and the fall deer hunt.

The Southcentral region, where the Chugach National Forest is located, supports a mixture of lifestyles, ranging from typically urban in Anchorage to the Native Alaskan lifestyles of many outlying villages. That Anchorage residents buy more sport fishing licenses per capita than any major city in the United States is indicative of the importance of outdoor recreational activities in Alaskan lifestyles.

The Interior of Alaska, which makes up the remainder of the State, has no National Forests, but its resources will play an important role in the future of Alaska. The area is not only a major source of coal, oil, timber, natural gas, and minerals, but also provides for unique recreation experiences. The State and Private Forestry branch of the Forest Service is involved in identifying opportunities for assistance programs in this area. These programs are described in Chapter 4 of this Regional Guide.

The land is a source of livelihood for all Alaskans, both native and non-native. Except in Juneau, where government employment is an economic mainstay, most small communities depend on commercial fishing, tourism, or the timber industry. In many outlying villages, residents still depend on hunting and fishing as essential food sources. The subsistence lifestyle is valued as a cultural and traditional practice. Thus, protection of subsistence rights is equivalent to preservation of the historical and cultural character of Alaska.

Assumptions

1. Population will continue to increase at rates greater than the national average. The most rapid growth will occur in Southcentral Alaska.

2. Total income will increase, creating larger income gaps between social classes and between geographic areas.

3. Alaskans will seek a higher quality of life, demand greater environmental protection, and demand more forest-based commodity goods and services.

4. Prices will continue to rise, especially those related to energy. Consequently, resource use and processing costs also will increase.

5. In response to rising costs, improved processing technology will be introduced.

6. Relative to the rest of the State, Southcentral Alaska will experience the greatest economic growth rate, including industrial diversification and real income growth.

Soil, Air, and Water

Current Situation

Good soil, air, and water resources underlie the productivity and quality of all other forest resources. Tree growth, wildlife and fish habitat, agricultural potential, and recreation opportunities are intimately associated with quality soil, air, and water.

Soil. Mineral soils in Southeast and Southcentral Alaska have developed on recently glaciated landscapes and from transported or in-place glacial materials. Organic soils have also formed on these landscapes, where drainage is poor and the humification of plant residues, mainly sedges and mosses, has occurred. Land areas with organic soils are termed peat bogs and are classified as wetlands.

Productivity of mineral soils in terms of tree growth ranges from very high levels on floodplains, till plains, and most other lowlands to progressively lower levels at higher elevations and more northern sites. Most mineral soils with good drainage are highly productive for coniferous forests and associated vegetation and wildlife.

The productivity of organic soils, regardless of elevation, is much lower than the productivity of mineral soils. Site indexes range from 60 to 70 on the poorest sites to 130 to 140 on the best sites. Organic soils generally do not support forests, but produce mosses, sedges, and woody shrubs. Mining of peat for fuel and garden use is insignificant at present, but is being studied by State agencies.

The minerals necessary for vegetative growth are found in the surface layers of the soil, and, in situations of mass wasting and erosion, productivity is therefore drastically reduced on the site.

Air. The air quality of Alaska is generally in a pristine state. Seasonal degradation occurs in the Interior and Southcentral portions of the State as a result of smoke emissions from wild and prescriptive burnings. The generally wet, rainbelt conditions of Southeast Alaska preclude the occurrence of natural fire, except on a very infrequent basis.

Prescribed use of fire is planned as a part of the wildlife habitat enhancement activities in Southcentral Alaska. Smoke management will continue to be an important part of the planning and operation of prescriptive burning. Coordination with the Alaska Department of Environmental

Conservation is necessary to ensure that air quality is not degraded. Local sources of emissions must be evaluated to ensure that airshed integrity is maintained.

Water. All major rivers traversing National Forest System lands in the Region originate within Alaska, except for the Alsek, Taku, and Stikine, whose headwaters are in Canada. Rivers fall into two general groups, glacial and nonglacial. Most glacial rivers are found in the Southcentral and Southeast areas. Alaska has abundant water resources; about 42 percent of the Nation's freshwater supply flows through the State of Alaska. On a statewide basis, water supply exceeds total consumption and withdrawal demands. However, this availability of water can be deceiving in that most of Alaska's water is in the form of snow or ice.

Of the 745 billion gallons per day average annual streamflow from Alaska, 363 million gallons per day are used for both water withdrawals and consumption. By the year 2000, this figure is projected to be 1.201 billion gallons per day. Predominant water uses are domestic, industrial and seafood production, and mining. Water power has been and will continue to be used throughout Alaska to provide electricity.

Recent alluvial deposits in river valleys, including floodplains, terraces, and alluvial fans, are the principal groundwater source. Discharge of groundwater from alluvial aquifers occurs largely as base flows to streams. Groundwater is also discharged at springs and wetlands. Precipitation recharges these aquifers.

Precipitation is high, averaging more than 100 inches in the coastal areas and 40 to 60 inches on the Kenai Peninsula, with more than 300 inches annually at high elevations. Consequently, runoff is high, averaging about 95 inches annually. The average annual runoff in Southeast Alaska is 105 inches. Runoff at lower elevations is approximately 60 to 100 inches annually and 150 to 250 inches from intermediate and higher elevations. Stream drainages are predominantly short and steep, as opposed to flat, broad valley streams. Many of the mainland streams are of glacial origin, while those on the islands are not. Natural water storage, including groundwater, is very low because of steep topography, shallow soils, impermeable rocks, and small drainage areas. Artificial impoundments are frequently used to supply large volumes of water for a wide variety of uses, and periodic shortages of domestic water plague several communities in the area.

Water quality on National Forest System lands is very high as a result of low quantities of dissolved solids and suspended sediments, except in glacial streams, where seasonal sediment concentrations may exceed 2,000 milligrams per liter. Mineral and organic particles, increased water temperature, and dissolved solids brought about by mass wasting, soil erosion, and vegetative removal along streams are factors that may contribute to lowered water quality. High water quality provides good fish spawning habitat and fingerling rearing areas. Drinking-water supplies and, to a lesser extent, industrial water supplies are also dependent on continued high quality and quantity of water.

Integrated Soil, Air, and Water Programs. Major activities in the soils and water program include inventory, quality monitoring, improvements and restoration, and management services.

Inventory maps and data are available for about 25 percent of the National Forest acreage and include standard soil surveys, soil and associated ecosystem inventories, and land system inventories. Water inventories are completed for about 5 percent of Federal lands in Southeast and Southcentral Alaska.

A program to monitor the effects of management activities needs to be strengthened. This program has a priority role in determining compliance with State of Alaska water-quality standards and in measuring and interpreting changes in water quality and quantity and land productivity. The goal of the monitoring program is to ensure the protection and maintenance of watershed conditions during management activities. This is accomplished by supplying soil and water data and interpretations and by on-the-ground evaluation and recommendations for ongoing forest activities.

The goal of the improvement program is to restore and maintain waters and soils that have been degraded by management or natural causes. Improvement measures consist of revegetation and construction of soil-stabilization structures.

Assumptions

An analysis of resource capability is made for each assumption to address management concerns for both current programs and anticipated uses.

1. Economic growth and increased energy needs will bring about greater demands for hydroelectric power. Both Southeast and Southcentral Alaska have considerable potential for hydroelectric power generation, which may enable them to meet part of their energy needs. At present, two hydroelectric plants, Tyee Lake and Swan Lake, are being developed in Southeast Alaska, and there are proposals for major hydroelectric plants in the Interior of the State. Hydrologists and soil scientists will continue to provide base data for the projects in Southeast Alaska.

2. Legislation, regulations, and manual direction will ensure that appropriate management practices are closely followed on riparian and aquatic ecosystems, wetlands, and floodplains. Many of these areas are biologically productive and are extremely sensitive to management actions, such as road construction and timber harvest.

3. Public demand for water protection and maintenance of soil productivity will increase. A watershed improvement program will require continued development on each Forest. Forests will also need to improve methods for predicting soil mass movement and erosion.

4. Community growth and development will require that resource managers supply high-quality water for domestic consumption, food

processing, outdoor recreation, and industrial needs. This requires that watershed specialists supply soil and water data for municipal watersheds and monitor management actions to ensure that water-quality standards are met.

5. Soil and water quality monitoring and research will suggest new methods for erosion and sediment control. In addition, this research will provide data for assessment of natural water-quality and quantity fluctuations, and on the effects of short-term changes in water quality and streamflow on fish habitat.

6. Studies are presently being undertaken to investigate factors that influence soil and water movement. This investigation includes the study of soil parent materials and their response to timber harvest and road construction. Forest productivity ratings will be developed for the spectrum of landforms and soils that occurs in the Region. Currently, the research program and the National Forests are engaged in a cooperative effort to gather and analyze information to evaluate the productivity of the major landforms and soils.

7. Aquaculture water use is expected to increase to 150 million gallons per day in Southeast and Southcentral Alaska. Pulp mill and other industrial uses, such as mining, will remain at about 100 million gallons per day, while domestic use is expected to increase to about 50 million gallons per day. These estimates are based on information contained in "Alaska Regional Profiles for Southeastern and Southcentral Regions" and in "Resources for Alaska." Hydroelectric power potential in Southeast Alaska is particularly high.

8. Air quality is expected to remain high. However, proposals for burning and industrial development, such as mining and pulp mills, will require analysis prior to implementation, and existing industrial mills will require monitoring.

Fish

Current Situation

In the early days of the Alaskan commercial salmon fishery, most salmon were used for subsistence, and supply exceeded demand. With the development of canning processes in about 1860, this situation changed. By 1900, the salmon fishery was a rapidly growing, highly competitive industry. The commercial harvest steadily increased until the period 1930-40, when peak harvests of over 100 million fish were reached. Since then, annual harvest levels reached a low of about 40 million fish in the early 1960's and increased to an average of 52 million during the next 10 years. Presently (1980-83), the catch is again at roughly record high levels. Salmon catches for the years 1970-80 are shown in Table 2-1.

Table 2-1

Commercial Salmon Catches (1970-80)

Year	Statewide Catch (million salmon)	Harvests From Waters Adjacent to the Tongass and Chugach National Forests (million salmon)	Value From Tongass and Chugach Catch (million dollars)
1970	68.5	17.7	17.6
1971	47.5	20.8	21.5
1972	32.0	18.1	25.5
1973	22.3	13.1	39.5
1974	21.8	9.2	34.5
1975	26.2	10.1	30.0
1976	44.4	11.6	37.2
1977	50.8	23.5	65.5
1978	82.3	28.5	69.5
1979	88.8	31.3	95.5
1980	110.2	54.5	158.0

Located along the fisheries-rich rim of the Gulf of Alaska, the Tongass National Forest and the Chugach National Forest annually produce fishery resources that are vital to local and regional economies of the State. Of salmon commercially harvested in the State in 1980, that portion of the harvest produced on National Forest System lands was $63 million for the Tongass and $95 million for the Chugach, a total dockside value of $158 million. Recreational fisheries for anadromous and freshwater species produced on National Forest System lands during that same year provided 206,000 Recreation Visitor Days (RVD's) of fishing opportunity and contributed $6.8 million to the economy. (See Table 2-2).

Table 2-2

Use of Anadromous and Freshwater Fish Resources on the Tongass and Chugach National Forests, 1977-81

Year	1,000 RVD's
1977	183
1978	193
1979	200
1980	201
1981	206

National Forest System land in both Southeast and Southcentral Alaska has the capacity to produce more anadromous fish than the present supply. In Southeast Alaska, at the turn of the century, 2.5 million sockeye salmon were harvested as they returned to lake systems on the National Forests to spawn. Less than 1 million sockeye are harvested in the same waters today. From 1930 to the early 1940's, there were years during which 40 to 60 million pink salmon were harvested in waters adjacent to the Tongass National Forest. Blending the rehabilitation of this natural production capacity with state-of-the-art aquaculture technology holds great promise for returning National Forest lake and stream habitats to a sustained high level of anadromous and resident fish production.

The average salmon catch from Southeast and Southcentral Alaska from 1970 through 1980 was 21.67 million fish. The long-term objective of the State of Alaska for the Southeast and Southcentral regions is to provide an annual harvest of 59 million salmon. To meet this goal, Regional aquaculture planning teams are working to develop strategic salmon resource enhancement plans for the State. By the year 2000, the Southeast Alaska Regional Comprehensive Salmon Plan projects an annual harvest of 45 million salmon, bringing a dockside value of $163 million (1980 dollars) to the commercial fishermen. Much of this additional production must come from the lakes and streams of the National Forests.

To achieve these objectives, it will be necessary to:

1. Manage fisheries to obtain maximum production from wild stocks of salmon

2. Maintain productivity through protection of existing habitat

3. Engage in intensive habitat enhancement and rehabilitation programs

4. Supplement wild stocks with production from hatcheries

The Alaska Department of Fish and Game is responsible for fisheries management and regulations on National Forest System lands; the Forest Service is responsible for the habitat. Therefore, planning and management programs of the Alaska Department of Fish and Game, the Forest Service, and private sector hatcheries are closely coordinated. Consultation and coordination with the Alaska Department of Environmental Conservation, Department of Natural Resources, the National Marine Fisheries Service, and the U.S. Fish and Wildlife Service also must be maintained at the highest level.

The Forest Service is primarily concerned with enhancement and protection of natural habitat. Enhancement may include lake stocking; lake fertilization; fishways, stream clearance, spawning channels; and riparian vegetation manipulation. Habitat protection programs strive to maintain proper stream temperatures, dissolved oxygen levels, adequate cover, minimal sedimentation, and free passage for fish. Special emphasis is placed on identifying tributaries that are important as rearing habitat and on carrying out protection and enhancement measures to ensure that productive capacity of these tributaries is not impaired.

The Tongass National Forest in Southeast Alaska contains about 120,000 acres of fish-bearing lakes and 23,000 miles of streams. The Chugach National Forest portion of Southcentral Alaska contains about 70,000 acres of lakes and 8,000 miles of streams. The majority of these lakes and streams are capable of producing one or more of the eight species of salmonids in sufficient quantities to attract both commercial and sport fisheries. In addition to salmon, Arctic grayling, Dolly Varden, Arctic char, rainbow, cutthroat, lake trout, eulachon, and other species are eagerly sought by sportsmen. During the past three decades, a significant sport fishery has developed in Southeast and Southcentral Alaska, as well as in the rest of the State. In the Region in 1979, sport fishing accounted for about 200,000 recreation visitor days and was valued at $7 million. Since statehood, sport fishing license sales have increased at the rate of 7.4 percent per year.

A quality sport fishery depends on the presence of a variety of salmonid fishes. Heavy fishing pressure occurs in the most accessible areas, and local stocks are often depleted. Periodic plantings are required to meet angler needs. Maintenance of productive habitat for sport fish can be achieved through implementation of existing standards.

The utilization of fish for personal and subsistence use has been and continues to be a common practice in Alaska. Governmental wildlife agencies have recognized this use and have always strived to ensure that people in need, especially in rural areas, were afforded good opportunities to obtain adequate supplies of wildlife and fish. Both the Alaska Game Commission and the Board of Fisheries and Game have attempted to set regulations for the taking of wildlife and fish that would permit residents to satisfy these subsistence needs. The Alaska Lands Act requires subsistence users to be recognized in land-use decisions on all public lands and, in the event of conflict, subsistence use is to be given priority in the consumptive use of fish and other renewable resources. To achieve this objective, the Forest Service is working closely with the U.S. Department of the Interior and State agencies. (See Appendix E.)

Assumptions

1. Alaskan fisheries are vital to the State's economy and also contribute significantly to the national and international food supply.

2. Management and protection of natural stocks and habitat will remain the primary means of increasing or maintaining fish productivity.

3. Total worldwide demand for animal protein and seafood will continue to increase and will stimulate the production and harvest of salmon in Alaska.

4. Sport fishing will increase in response to increased tourism, population growth, leisure time, and increased interest in the sport.

5. Natural fish habitat quality and quantity will diminish because of community expansion and other permanent land-use developments.

6. With respect to Forest management, effects on productivity will be directly proportional to safeguards.

7. Historical harvests imply that Southeast and Southcentral Alaska have the capacity to produce more sport and commercial salmonids than are now produced. Therefore, at least part of the demand for salmon, trout, and char can be satisfied by intensive management of wild stocks. Supplemented by production from hatcheries, and by natural habitat protection, enhancement, and restoration, the total demands can be satisfied.

Wildlife

Current Situation

Overview. The rich and varied wildlife in Alaska provides important subsistence, recreation, commercial, ecological, and aesthetic resources for the public to use and enjoy. Compared to other States, many wildlife species are abundant in Alaska, including important recreational species, such as the brown bear, black bear, Dall sheep, moose, Sitka black-tailed deer, caribou, and wolf. Furbearers, such as the wolverine, marten, and beaver, are commercially valuable and important to Alaska's fur trade. Large areas of wetlands and tidal flats provide staging and breeding habitat for millions of waterfowl, marshbirds, and shore birds. The heavily timbered beachfront zones between Prince William Sound and Ketchikan support more than 5,800 breeding pairs of bald eagles, the largest population in North America. Marine mammals, such as sea lions, harbor seals, walrus, sea otters, killer whales, and Dall porpoises, frequent coastal and inland waters.

Southeast Alaska. National Forest System lands in Southeast Alaska support 53 species of mammals, 269 species of birds, and 7 species of amphibians. The distribution and population sizes of these various wildlife species will vary according to habitat conditions and availability, severity of weather, disease, predation, and, for some of the popular game animals, local hunting pressure.

Sitka black-tailed deer populations in parts of Southeast Alaska are presently low. The most significant factors appear to be changes in habitat conditions, severe winter weather, and predation.

Moose are found in larger mainland river drainages and on the Yakutat forelands. During the late 1960's and 1970's, a series of hard winters, predation, and heavy hunting pressure, caused partially by improved road access, may have combined to bring about a serious decline in the Yakutat moose population. However, recent information from the Alaska Department of Fish and Game indicates the moose are recovering.

Goat populations are also low throughout most of their range. The reason for this decline is not known. Suspected causes are predators, harsh winters, parasites, and hunting pressure.

Brown bear populations, with local exceptions, have probably not varied significantly over the years. Conflicts between bears and humans are increasing, especially near developed areas.

Southeast Alaska annually hosts millions of waterfowl and shorebirds migrating to and from northern Alaska and Canadian breeding grounds. Nearly the entire known population of Vancouver Canada geese breeds and remains in Southeast Alaska throughout the year. Winter waterfowl populations vary according to the severity of winters, but are probably in excess of 500,000 annually (excluding seabirds). Waterfowl habitat conditions are generally good throughout the Region.

Approximately 4,000 breeding pairs of bald eagles inhabit Southeast Alaska and account for 80 percent of Alaska's bald eagle population. Human activity along the coastline can result in disturbances to nesting and feeding areas and loss of nesting sites for this national resource.

Estimates of abundance of some of the most important animals in the Tongass National Forest are shown in Table 2-3.

Table 2-3

Wildlife Populations, Tongass National Forest

Species	Population
Alaska Brown Bear	4,700
Black Bear	7,700
Sitka Black-Tailed Deer	142,000
Moose	2,100
Mountain Goat	5,600
Wolverine	500
Wolf	700

Source: Annual Wildlife Report, Alaska Region 1976-80.

Wildlife demand in the Southeast during the mid-1970's and mid-1980's is shown in Table 2-4 and is expressed in terms of the number of licenses or permits.

Extensive stands of old-growth timber in Southeast Alaska sustain many species of wildlife that depend on this particular habitat to meet their needs. These include such species as Sitka black-tailed deer, mountain goat, marten, and the bald eagle. Much of this habitat is classified as commercial forest land and is subject to timber harvest. The amount of cutting that can be sustained without having a major effect on wildlife populations is an important management concern. Provisions are made in

each timber harvest area to retain a portion of old-growth forest habitat to meet wildlife and other resource needs. However, there is concern by the public, the Alaska Department of Fish and Game, other agencies, conservation organizations, and others that these habitat retention measures are not sufficient.

Table 2-4

Southeast Alaska Wildlife Demand
(Number of Licenses or Permits)

Species	Mid-1970's	Mid-1980's
Furbearers	800	1,000
Moose	600	900
Sitka Black-Tailed Deer	4,200	5,200
Mountain Goat	500	600
Waterfowl	3,000	3,700
Upland Game	8,000	10,000

Source: U.S. Department of Agriculture, Forest Service, Resources Planning Act, 1978.

Opportunities to improve wildlife habitats in Southeast Alaska need to be identified and the benefits to wildlife verified through research. The development of prescriptions for timber harvest and for precommercial and commercial thinning of second-growth stands may have good potential for improving habitat for deer and moose. Providing thermal cover and forage production through silvicultural prescriptions in key habitat areas may help mitigate reductions in old-growth forest habitat. It is important that research programs focus on the development of silvicultural methods to benefit wildlife and also provide information on species and habitat relationships. The opportunities for mitigation of habitat loss through second-growth forest management are being field tested on the Tongass National Forest. These tests will determine the suitability of these methods for more extensive application.

Southcentral Alaska. This area provides some of Alaska's most important wildlife habitat because of its high productivity and accessibility to the largest segment of Alaska's human population.

Prime habitat for millions of migratory waterfowl, shorebirds, and sea birds is found in such areas as the Susitna River lowlands, the Chickaloon Flats, Copper River Delta, Controller Bay, Icy Bay coastal lowlands, Portage Flats, and the Kenai-Swanson River. These areas provide resting, feeding, and staging grounds for hundreds of species of migratory waterfowl and other birdlife. They also provide key nesting and rearing habitat for about 170,000 ducks, geese, and swans, including the entire known population of

approximately 30,000 dusky Canada geese. Trumpeter swans breed throughout the Susitna lowlands, Kenai, Copper River Delta, and coastal lowlands to Icy Bay. Their fall flight of 1,300 to 1,400 makes up a major portion of the known North American population. Representatives of most of Alaska's nongame bird species also are found within the Southcentral area because of its great habitat diversity. Golden eagles and a wide variety of hawks and owls are relatively common. Approximately 1,800 pairs of bald eagles nest in the Prince William Sound area.

Moose, Dall sheep, mountain goat, Sitka black-tailed deer, black bear, and grizzly bear are the primary big-game species in the area. Black-tailed deer are found on some islands of Prince William Sound and on Kodiak and Afognak Islands. Coyotes, fox, wolverine, and wolves are found on most of the mainland. Upland game species include spruce and ruffed grouse, ptarmigan, and snowshoe hare. The principal marine mammals that utilize the coastlines and islands are sea otters, sea lions, and harbor seals. A variety of whales and porpoises also frequent coastal waters.

Caribou primarily occur on the high, sparsely wooded inland, plateaus, and uplands of such areas as the Kenai, Upper Susitna, and Mulchatna. Caribou populations have fluctuated widely and are currently low in the upper Susitna area. On the Kenai Peninsula, they have increased to about 400, and the Mulchatna herd in the Lake Clark area now numbers 14,000.

Alpine uplands and steep rocky slopes on northern and western portions of the Kenai, Chugach, and Talkeetna Mountains and in the Alaska Range provide prime habitat for Dall sheep. Populations are at the carrying capacity of their ranges and are currently stable.

Mountain goats are relatively common in the coastal mountains from Icy Bay to Cook Inlet. Populations were stable until the 1970's, when areawide declines occurred as a result of weather and local overhunting. North of the Talkeetna Mountains, numbers are low.

Black bear are widely distributed. Highest densities occur in the lowland forested areas of Prince William Sound, Kenai, and the lower Susitna Valley. Populations are generally stable, except in upper Prince William Sound, where the population is limited. Bear populations near centers of human activity, such as Kenai and the lower Susitna Valley, are lower, but stable.

Demand for quality hunting is growing. The Alaska Department of Fish and Game has acknowledged this demand in their Alaska Wildlife Management Plan. In certain areas, the use of vehicles for hunting has been prohibited to limit access and reduce hunting pressure. Other areas also will be managed so that trophies, rather than meat, are the primary hunting objective.

Alaska's human population has continued to increase, especially during the past decade. Population growth is expected to continue, with the most rapid growth occurring near Anchorage, in the lower Susitna Valley, and on the Kenai Peninsula. Because more than half of Alaska's population resides within the Southcentral area, consumptive demand for wildlife generally exceeds available supply. Sport license sales are increasing at a rate of

7.4 percent annually. Nonconsumptive uses of wildlife will continue to grow, and demand for management to enhance this type of activity is expected to increase.

Estimates of abundance of some of the more important animals on the Chugach National Forest are shown in Table 2-5, and present and projected demands for wildlife in Southcentral Alaska are reflected in Table 2-6.

Table 2-5

Wildlife Populations, Chugach National Forest

Species	Population
Alaska Brown Bear	600
Black Bear	3,700
Sitka Black-Tailed Deer	9,500
Caribou	400
Dall Sheep	1,000
Moose	2,500
Mountain Goat	4,100
Wolverine	1,000

Source: Annual Wildlife Report, Alaska Region 1976-80.

Table 2-6

Wildlife Demand, Southcentral Alaska
(Number of Licenses or Permits)

Species	Mid-1970's	Mid-1980's
Furbearers	4,000	8,000
Moose	8,400	17,000
Beaver	100	250
Sitka Black-Tailed Deer	500	1,000
Mountain Goat	600	1,200
Sheep	1,500	3,000
Waterfowl	7,000	14,000
Upland Game	34,000	68,000

Source: U.S. Department of Agriculture, Forest Service, Resources Planning Act (RPA), 1978.

Interior Alaska. Most game habitats and populations are in fair to good condition in Interior Alaska. Moose is generally the most important big-game species, providing both subsistence and recreation hunting. Sixty percent of the moose harvest is for local use. Annual caribou harvests depend on the proximity of herds to villages. Arctic herds are utilized primarily by local residents. The western Arctic herd, however, has suffered severe reductions as a result of predation, weather, and heavy utilization by coastal villages.

Harvest of black bear is generally limited to local use. Grizzly bear are not in great demand; the annual harvest of less than 100 is a result of sport hunting.

The Dall sheep harvest is primarily limited to trophy rams. About 75 percent are taken by sport hunters, and the remainder are taken for domestic use; probably fewer than 100 sheep are taken annually. The number of hunters is increasing, however, and hunting success is decreasing. Increased restrictions may be required to meet public demand.

Waterfowl use is primarily domestic. Hunting by both visitors and local residents occurs during spring and fall migrations. Total numbers harvested, however, are insignificant.

The level of the small-game harvest is unknown, but believed to be light to moderate and to reflect cyclic abundance. Hunting of small game is generally incidental to other hunting and trapping. Demand for furbearers, waterfowl, and upland game generally does not exceed supply.

Subsistence demands for wildlife will continue at the present level of use. Trapping will continue in accordance with the market value of fur. The use of wildlife will continue to be one of the major social and economic resources.

Estimates of nonconsumptive uses of wildlife are not available. Photography, viewing, nature study, and similar uses are growing rapidly and will continue to grow. Increasing numbers of hunting guides are including or substituting these activities in their services.

With the exception of certain areas that are readily accessible from the larger communities or when specific wildlife populations are limited, hunting pressure is not a serious limiting factor overall.

However, moose are found in small numbers and could be affected by unregulated hunting pressure. In those areas where deer populations are low because of weather and predation, demand generally exceeds supply, and regulations are more restrictive.

Wildlife Management. The primary goal of the wildlife habitat management program in the Alaska Region is to provide suitable habitat to sustain wildlife populations, consistent with multiple-resource management objectives and public demand. Management priorities in the Region are endangered, threatened, and sensitive animals and plants; species of subsistence, economic, and recreational importance; and other nongame species.

The Forest Service program includes those activities necessary to protect, maintain, and enhance National Forest System wildlife habitats; to assist State and private land managers (including Native village and Regional corporations) through cooperative forestry programs; and to develop new knowledge through research on the environmental requirements of wildlife. Management of wildfire, use of prescribed fire, and carefully planned timber harvest practices are keys to maintaining the productive capability of many areas for wildlife.

The Forest Service recognizes the importance of nongame wildlife as one of the resource values in the National Forests. Species such as song birds, small mammals, and cavity nesters provide recreational enjoyment and play important roles in the forest ecosystem. Regional policies for habitat management will ensure that these species are provided for at the Forest planning level.

Threatened and Endangered Species. The goal of the threatened and endangered species management program is to develop and initiate the actions required to improve the status of these species so that Federal listing is no longer required. There are 14 species classified as endangered in Alaska; 8 of these are whales. The grey, sei, and finback whales have been sighted in the outer coast of entrance waters of Southeast Alaska. The humpback whale is known to frequent the inside waters of Southeast Alaska at certain times of the year, and may be a year-round inhabitant of some areas. The sperm, bowhead, right, and blue whales also are found in the Region. These whales should be considered in any Forest management programs that may affect marine habitat.

Five species of birds are also classified as endangered: the short-tailed albatross, Aleutian Canada goose, Eskimo curlew, American peregrine falcon, and the Arctic peregrine falcon. At this time, there is no evidence that any of these species is dependent on National Forest System lands for any part of its life cycle or that any resource management activities on the National Forests have any effect on these species.

The determination was made informally by the Forest Service based on past interactions with the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and the Alaska Department of Fish and Game on the status of federally listed animals and plants on National Forest System lands in Alaska. Of the 14 animals on the Federal list, only 4 species of whales may be subject to impact from management activities on the National Forests. During the past 2 years, the Forest Service has entered into consultation with the National Marine Fisheries Service on possible effects of projects to humpback whales in Southeast Alaska waters. The biological assessments from these consultations indicate that no adverse effects to whales are anticipated. No Alaska plants are listed or proposed for listing on the Federal Threatened and Endangered list. The Forest Service will work closely with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service to ensure that protective measures are implemented in the event that endangered or threatened animals and plants are found on National Forest System lands.

Assumptions

1. Both consumptive and nonconsumptive wildlife use will substantially increase to the year 1990 in response to population growth, increased tourism, and generally greater affluence. Nonconsumptive use will grow, representing a change in public values.

2. Increased commodity use of forests and other lands will lead to greater impacts on wildlife. Community expansion and other permanent developments may further reduce the extent and quality of wildlife habitat.

3. Growing populations will increase hunting pressure on all game species, requiring more restrictive regulations, especially near larger communities.

4. Expanded road systems will provide greater access for all uses of wildlife, creating increased human-caused pressures on wildlife and a problematic distribution of hunting pressure.

5. It is anticipated that subsistence demands on wildlife will remain stable or perhaps show a slight increase. Subsistence hunting, in most cases, will arise out of choice rather than necessity, and it will continue as long as people live in isolated areas and utilize wildlife. Dependency on furbearers will continue as long as fur prices are high enough to make trapping profitable on a part-time or full-time basis.

6. Nonconsumptive uses (photography, viewing, nature study) of wildlife are growing rapidly. Increasing numbers of hunting guides are including or substituting these activities in their services. The number of organized groups and private parties with this objective is growing.

7. Demand for moose exceeds supply, especially in Southeast Alaska and in those areas where moose populations are low because of weather and predation. In most areas, however, demand for furbearers, waterfowl, and upland game generally does not exceed supply.

Estuaries and Tidal Meadows

Current Situation

Thousands of miles of coastline border the Tongass and Chugach National Forests. Along this coast is a great diversity of habitats that collectively account for the complex Southeast Alaska estuarine and tidal meadow environments. Estuaries and tidal meadows, although separate ecosystems, usually are in close proximity to each other. Many species of wildlife and fish depend heavily upon both of these highly productive environments during various stages of their lives. They also are dependent on the forest ecosystem as a source of high-quality freshwater that enters the estuarine environment.

Estuaries include the tidal pools remaining in depressions along rocky shores after the tide recedes. Many animals either permanently inhabit these protected pools or scurry into them when adjacent rocks become exposed. Unprotected, surf-swept shores support another distinct community of plants and animals that either requires surf or has adapted to tolerate surf and tidal flows. Plants and animals inhabiting intertidal rocks have evolved adaptations for attaching to the rock substrate, or to each other, to gain protection from tidal and surf action. At low tide, these organisms are either adapted to move lower on the rock face to remain moist (for example, crabs), or they possess some mechanism to avoid drying (for example, barnacles). Kelp and algae beds provide special habitats for a variety of organisms and for the fish and mammal species that feed upon these organisms. Shallow estuarine waters provide vital habitat for Dungeness crab, shrimp, flatfishes, and numerous other species.

Anadromous salmonids leave freshwater at some stage of life and must feed in and migrate through estuaries on their way to the ocean. Estuaries also are extremely important for spawning and overwintering herring and for many other species of vertebrate and invertebrate fauna.

Islands and shorelines also provide important breeding, resting, and feeding grounds for birds and marine mammals because of their remoteness and abundant supply of nesting habitat or food. Rookeries are often located on steep, rocky headlands or on small rocky islands and islets that furnish refuge from mammal predators, while providing easy ocean access for adult birds and their young.

Waterfowl and shorebirds occupy the grass-sedge tidal meadows bordering many of Alaska's estuaries. This habitat is vital for these species. Bald eagles nest in the forests of the Region, but never far from the estuaries and tidal meadows, where they find most of their food. Almost all known eagle nests lie within 180 meters of saltwater or along major streams.

Several species of terrestrial mammals forage the shorelines and marshes in search of the abundant food found there. The land otter feeds on mussels, other invertebrates, and fish. Mink and weasels regularly hunt along the shorelines. Marten, wolverines, and wolves spend much of their time along the beach fringe during the winter months. During hard winters when other food is scarce, Sitka black-tailed deer may be driven by deep snows to beach lines, where they feed on dead beach grass, sedges, and kelp. In spring, they feed on early greening sedges and other marsh edge vegetation. Black and brown bears also use this habitat, particularly during salmon runs, and in spring, when fresh greens first emerge and winter-killed deer become available as carrion.

Estuaries and tidal meadows also represent centers of human activity related to the development of a variety of forest resources. Estuaries are normally associated with protected coves and bays, which are often the best sites for water-oriented developments, such as log transfer sites, log storage areas, ferry terminals, temporary settlements, and recreational use. The effects that such activities may have on estuarine or wetland ecosystems must be carefully assessed, and management procedures that reduce adverse effects upon fish, shellfish, and wildlife species must be developed and applied.

As an example, problems can stem from the current practice of storing log rafts in the water prior to towing them to a mill. Grounding of stored rafts at low tide can cause damage by compacting intertidal and sublittoral aquatic vegetation and infauna. The Forest Service supports the selection of storage areas over water deep enough to prevent grounding of rafts at any tidal stage. Estuarine habitat is also lost through the filling and dredging that occurs during construction of terminal transport facilities. Long-term research is needed to monitor log transfer sites and storage areas and to assess and quantify the effects of organic accumulation and leachates on water quality and marine biota. Results of this research will be used to modify existing Forest Service policies and practices to reduce or eliminate adverse effects resulting from those activities.

Assumptions

1. Human activities and effects will increase in the estuarine and tidal meadow ecosystems of Southeast Alaska.

2. Wildlife and fish habitats within these ecosystems will require increasingly refined management measures, based on a better understanding of habitat factors, to ensure continued productivity.

3. Conflicts will arise between various uses, such as resource development, commercial fishing, or recreation. Such conflicts will require resolution on a case-by-case basis, with management prescriptions formulated during the Forest planning process.

Timber

Current Situation

Available land classification and resource inventory data for the State were used. Because of the magnitude of Alaska and changing landownership patterns, more information needs to be collected. When no other detailed data were available, information presented in The Forest Ecosystem of Southeast Alaska (Hutchison and LaBau, 1975) was used.

There are about 365.5 million acres of land in Alaska, which represent about 16 percent of the total land area of the contiguous United States. Of this area, 119 million acres are forested lands, equivalent to the total forest land area found in the States of Montana, Washington, Oregon, and California.

Alaska Region. Dimension lumber demands in Alaska are currently about 70 million board feet annually. The Pacific Northwest and Canada now successfully supply these markets, though a small, local, green-sawn lumber market exists.

That timber has not been strongly competitive in U.S. domestic markets appears to be a result of high production costs and distance from markets. Most of Alaska's timber market depends on Japanese demand. It is expected that timber will continue to be exported to Japan at least until the year 1990, but it may then slowly decline. Future foreign markets that appear

favorable include South Korea, Peoples Republic of China, and, to a lesser extent, other Pacific Rim countries, such as Canada, New Zealand, and Russia.

Allowable timber harvest volumes from Alaska's National Forests depend on several variables. These include productivity of the forest, current logging technology, silvicultural practices, and the interrelationships among other forest resources and the environment.

The Alaska Lands Act provides that appropriate monies will be available as needed to maintain the timber supply from the Tongass National Forest at a rate of 4.5 billion board measure per decade to dependent industry.

Efforts to establish a timber manufacturing industry in the Kodiak-Afognak Island area, in conjunction with similar offerings by the State of Alaska, resulted in an award of 210 billion board feet. The Alaska Native Claims Settlement Act and the Alaska Lands Act conveyed the entire sale area to various Native corporations. The conveyance is subject to existing valid rights and the timber sale contract that will expire August 3, 1984.

Assuming favorable market conditions, long-term average Native harvests in Southeast Alaska are expected to be 250 to 300 million board feet annually. It is assumed that the higher quality logs will be exported in the round and that only a small proportion (low-quality logs) will find their way into local pulp markets.

Recognizing the need to provide greater opportunities for small businesses to access Alaska's National Forest timber and the need to stimulate competition, the Forest Service and the Small Business Administration (SBA) initiated the first continuing agreements, in March 1977, providing for a set-aside timber sale program. The present agreement, which will expire September 30, 1984, provides for an annual average supply of approximately 80 million board feet on the Tongass National Forest and 5 million board feet on the Chugach National Forest for preferential bidding by qualified small businesses. Through September 1982, the total program commitment was 440 million board feet. Upon expiration of the present agreement, another SBA agreement will be developed.

The Salvage Timber Sale Program was established in the National Forest System to further encourage competition and opportunity for small businesses to enter the timber sale contract market. The Program is limited to businesses employing up to 25 people. The Program will improve effective use of wood material in situations involving salvages, and is being formally organized in Alaska this year.

The timber program also includes planting, free-use permits, silvicultural stand examination, and timber stand improvement. The need for planting has resulted in the establishment of a nursery at Petersburg that is capable of growing 1 million containerized seedlings annually. In 1981, it was estimated that approximately 7,000 acres of National Forest System lands needed planting.

Silvicultural stand examinations are carried out to provide base data for use in the development of management prescriptions. These include an assessment of sale area improvement needs.

There is also an active timber stand improvement program. Approximately 3,500 acres of precommercial thinning were completed in 1980. Hemlock dwarf mistletoe is prevalent in Southeast Alaska, and its control is a major concern of the insect and disease control program. Between 1967 and 1981, 14,000 acres were treated on the Tongass National Forest. Mistletoe is not found on the Chugach National Forest. However, in Southcentral forests, there is extensive bark beetle activity requiring management.

Free-use collection of firewood has increased dramatically since the 1974 energy crisis, from an estimated 260 users in 1974 to an estimated 5,900 users in 1981. Demand for firewood is expected to continue to increase. There also is a limited free-use demand for house logs.

Southeast Alaska. There are 24.1 million acres in Southeast Alaska, from Dixon Entrance to Yakutat Bay. Forests cover an estimated 9.5 million acres, but only about half this area supports stands of commercial quality.

The temperate rain forests are a segment of the continuous coastal forest extending along the Pacific Rim from northern California to Cook Inlet in Alaska. Undisturbed stands consist of trees of various ages, sizes, and conditions, many with dead tops and snags. Stands disturbed during the last century or two by harvests, windthrow, fire, or landslide contain trees of more uniform age and size, with fewer snags and defective trees.

In the southern part of Southeast Alaska, the forests are primarily western hemlock and Sitka spruce, with scattered western red cedar and Alaska cedar. Northward, the percentage of hemlock increases, and cedars become less important. Western red cedar extends only to the northern shore of Frederick Sound, and Alaska cedar is often found only as a small tree on wetter sites. In the northern portion of the area, mountain hemlock becomes more important. Other common species are red alder (along streams, on landslides, and on other disturbed areas), black cottonwood (in major mainland river valleys), and lodgepole pine (adjacent to muskegs and other poorly drained sites). Less common species include subalpine fir and Pacific silver fir. (A detailed description of the major forest cover types is presented in Appendix D of the EIS.)

The best stands of timber are generally found at lower elevations near tidewater. Stand heights, volume per acre, and quality diminish progressively with increasing elevation. Interspersed with the stands are wet openings, which usually consist of muskegs. The deeper muskegs are dominated by sphagnum mosses, while the shallow ones consist mainly of sedges, rushes, and ericaceous shrubs. Often there are a few poorly growing trees on muskegs, consisting primarily of scrub hemlock and lodgepole pine. Muskegs are also suitable sites for many plants with edible berries, may furnish scenic viewpoints for the foot traveler, and, under some conditions, help to regulate streamflow.

Between true muskegs and dense forest, there is often a transition zone of more open forest stands growing primarily on organic soils (Stephens, 1969). Here, any of the tree species occurring in Southeast Alaska may be found, but tree growth is slow and form is often poor. The open canopy that results allows light to reach the forest floor in sufficient amounts to support a dense understory vegetation of blueberry, huckleberry, rusty menziesii, and numerous small vascular plants. These stands are important wildlife habitat during snow-free winters and during other seasons of the year.

Above timberline (generally 2,500 to 3,000 feet), the alpine zone is dominated by heaths, grasses, and other low plants. Plants such as deer cabbage cover wide areas and provide excellent summer range for deer. Occasional trees occur often in stunted or shrublike form because of adverse growing conditions. The alpine area provides many fine recreational opportunities.

Southeast Alaska's forests contain fewer tree species than coastal forests to the south because species diversity generally decreases with increasing latitude. Nine conifer species and 22 broadleaf species attain tree size. Of these, four species are sought for commercial harvest: western hemlock, Sitka spruce, western red cedar, and Alaska cedar. Mountain hemlock is logged with western hemlock when encountered in mixed stands. Pacific silver fir and subalpine-fir occur in limited areas and may be harvested, though neither species is sought for harvest. Lodgepole pine is used locally for Christmas trees, but it is seldom found in dense commercial stands and is rarely cut. Black cottonwood has been harvested occasionally and tested for use in dissolving pulp, but it is not now being harvested. Red alder is used locally for carving and for smoking fish. Alders fix atmospheric nitrogen and are valuable in improving soil fertility. All of these species are utilized for firewood.

The forests contain many shrub species (Viereck and Little, 1972, describe 72 important species). Many of these shrubs are characteristic of the dry Interior and appear in Southeast Alaska only, in the drier transition zones at the head of Lynn Canal and Portland Canal. At present, berries are the only shrub products gathered commercially, though on a limited scale. Berries are extensively gathered by local residents.

From the 16.9 million acre Tongass National Forest, roughly 2.25 million acres are available for commercial harvest. To meet the Alaska Lands Act's volume provision of 4.5 billion board feet per decade, approximately 450 million board feet per year will be planned for harvest, involving up to 18,000 harvest acres annually. Approximately 250 to 300 miles of access road will need to be constructed annually for the next several years. Section 705 of the Alaska Lands Act makes available at least $40 million annually or as much as the Secretary of Agriculture finds is necessary to maintain a timber supply to dependent industry at a rate of 4.5 billion board feet per decade from the Tongass National Forest.

The total annual potential timber yield was calculated to be 1.18 billion board feet in the Tongass Land Management Plan. The maximum long-range sustained timber harvest within the present land allocation pattern (with

constraints applied to meet multiple-use objectives) is an average of 700 million board feet per year. This average will not be obtainable until all the regulated commercial forest land is under intensive management, which is estimated to be at least 110 years from now. The figure is based on calculations from yield projections of second-growth stands in Southeast Alaska.

More than 60 percent of the Tongass National Forest timber that is purchased and manufactured comes from two long-term sales (50-year, long-term sales were awarded in the 1950's to companies now known as Alaska Lumber and Pulp Company in Sitka and Louisiana Pacific Company in Ketchikan.) Timber sales on the Chugach National Forest have been primarily limited to comparatively small sales in response to local demand.

Some research indicates that Native round log exports could depress log prices and displace some of the existing cant market, since the final product of each is often the same. Historically, the Japanese have shown a decided preference for round logs rather than cants, and for spruce rather than hemlock. The greatest displacement is in the manufacture of hemlock cants. Little effect on the spruce cant market is expected. Moreover, since National Forest timber cannot be exported without primary manufacturing, it is unlikely that the cant market will be totally eliminated.

Southcentral Alaska. Forests in Southcentral Alaska can be found on coastal lands from the Bering Glacier on the east to Kodiak Island on the southwest. The total land area is 8,778,000 acres, of which 2,046,000 acres are forested. Only half of this forested area is of commercial quality.

The forests of Southcentral Alaska are the northernmost extension of the coastal temperate rain forest. Some of the tree species found in the Southeast area do not occur in Southcentral forests. In the Southcentral sections of the coastal forests, tree species composition changes. Western red cedar is not found north of Frederick Sound, and Alaska cedar is not found extensively in Prince William Sound. Cottonwood is extensive along glacial outwash rivers and becomes commercially important on alluvial terraces. Western hemlock becomes of less importance westward, but has been reported as far west as Cook Inlet. Sitka spruce is the only important tree in the coastal forests west of Cook Inlet, and the only conifer on Afognak and Kodiak Islands. White spruce, black cottonwood, paper birch, and aspen dominate noncoastal areas.

Relative to Southeast Alaska, Southcentral Alaska has a low volume of harvestable timber. In the Chugach National Forest, 332,000 acres are classified as commercial forest land, of which 93,000 are suitable for long-term timber production. These acreages have been recently adjusted to reflect land conveyances to the State and to Alaska Natives. Future wilderness designation may remove additional acres from the commercial forest land base. The base sale schedule is currently estimated to be 16 million board feet per year.

Interior Alaska. Interior Alaska includes a total area of 322 million acres. This immense area has varied topography, vegetative cover, and climatic conditions. Continuous and discontinuous permafrost (permanently frozen ground) occurs at varying depths throughout the Region and influences vegetative type and growth patterns. Although the annual precipitation of up to 30 inches is characteristic of a dry region, permafrost holds moisture near the surface. A heavy ground cover of grasses, mosses, shrubs, and trees retards surface runoff and, in many areas, insulates the permafrost, preventing melting. Consequently, except on south-facing slopes, plant growth and plant distribution do not appear to be limited by lack of moisture.

The Interior forests cover 106 million acres or one-third of the total land area. One-third of the total land area in the Interior consists of grasslands, brush, swamps, and tundra, with a small fraction in agricultural crops. The remaining one-third is barren rock or ice and snow. Although forests extend to the Arctic slope, the better stands are generally confined to the lower slopes and valleys of the larger rivers and their main tributaries. Principal forested regions include drainages of the Susitna, Copper, Tanana, Yukon, and Kuskokwim Rivers. These forests are capable of producing about 20 cubic feet of wood per acre per year. Extending beyond to the western and northern limits of tree growth are another 83 million acres of sparse or open woodlands. Permafrost, high water tables created by compact and stratified glacial materials, thin soils, and severe climatic conditions are factors responsible for the stunted and sparse tree growth over much of this area. In spite of these limiting factors, forest lands extend along much of the Porcupine, Chandalar, Koyukuk, and Kobuk Rivers and their tributaries.

Interior forest types are generally not pure stands, but rather mixtures of the four major commercial species--white spruce, paper birch, aspen, and balsam poplar. However, stands are classified on the basis of predominant species.

Heavy dependence on imported plywood and lumber, including precut house logs, has been the pattern in Interior forests during the postwar years. Little use has been made of Interior forests other than for local markets and subsistence. The emergence of Native ownerships and soaring costs of fuel oil are combining to stimulate increased use of local forests by bush communities. As management develops, log export is likely to develop and will help to provide urgently needed cash. Imported wood products will probably continue to prevail in the area until populations warrant the establishment of major wood industries.

As in Southeast Alaska, the principal commercial markets for Interior forests are export markets. Limited information is available on the amount of timber on State, other Federal, and private landownerships. Therefore, the potential supply and marketability of timber from these lands is largely unknown. The greatest potential for population growth and local Alaskan markets exists in the Interior.

Assumptions

1. The world demand for wood fiber will increase. Over the long run, demand for pulp and paper will rise and stimulate the development of new supply areas.

2. The short-run outlook for Alaska chip export will be similar to that for pulp production.

3. The production and export of round logs from private lands will continue in the immediate future, since this market appears to be strong.

4. The most favorable market for cants and round logs will continue to be Japan.

5. Some timber presently classified as marginal will be reclassified as standard or special, because of changing economics and new logging techniques.

6. The increase in price for wood products will lead to more complete utilization of wood fiber.

7. Timber yields will increase as application of silvicultural techniques, such as thinning, are applied on a larger scale.

Agriculture and Range

Current Situation

Russian trading companies gave consideration to agriculture in 1795 when they were selecting trading-post sites in Alaska. A second significant effort of a subsistence nature was the introduction of reindeer on the Seward Peninsula in the 1890's. Reindeer numbers exceeded 600,000 head at one time, but declined very rapidly during the late 1920's and 1930's. A new herd program is now under way on the Seward Peninsula.

During the 1930's farm developments took place in the Tanana Valley and Matanuska Valley areas of Interior and Southcentral Alaska. Presently, the State is promoting clearing and development of large-scale barley and dairy farm projects in the Tanana Valley and Southcentral Alaska. An interim goal of approximately 500,000 acres of land clearing has been set by the State. The first pilot project has been completed in the Tanana River Valley (Delta No. 1) for barley crops. Delta No. 2 is currently being developed, along with large-scale clearing for hay and dairy farming at Pt. McKenzie near Anchorage. Considerable controversy has resulted concerning the disposal of the timber from these sites.

The NANA Regional Corporation is engaged in reindeer herding on the Seward Peninsula, and the U.S. Department of Agriculture is involved with range surveys there. Other similar tundra ranges are utilized by caribou. Moose and caribou also frequent taiga complexes (mixed forest-tundra), and moose use river bottoms that are forested. Range use includes most areas used by

caribou and moose, as well as the milk cow pasturage in the Matanuska Valley. A potential for increased beef cattle and horse use exists, particularly in Southcentral Alaska. Neither agriculture nor range fall under the domain of the National Forest System in this Region.

Assumption

Continued emphasis on agriculture by State and private landowners will also result in greater consideration of other uses, such as wildlife and forest products.

Minerals and Geology

Current Situation

Many of the minerals considered to be strategic or critical are found in the National Forests of Alaska. These minerals range from precious metals (gold, silver, and platinum) to base metals (copper, iron, lead, zinc, nickel, cobalt, molybdenum, barium, and chromium). The nonmetallics, gypsum and asbestos, as well as coal, oil, and gas deposits, also exist in the National Forests of Alaska. Vast quantities of limestone and marble are found in Southeast Alaska. The projected national demand for some of these minerals is significant.

Management of mineral developments on National Forest System lands has assumed increased importance within recent years. While intensive modern exploration has been limited, exploration has increased since the passage of the Alaska Lands Act. The potential for new discoveries and expansion of older known deposits remains high. The significant discoveries by U.S. Borax of the world's second largest known deposit of molybdenum and by the Noranda Exploration in the mid-1970's, and the extensive exploration on the Yakobi-West Chichagof deposits are examples of the mineral potential in Southeast Alaska alone. The estimated gross value of the Borax deposit at the end of the 1980 working season was estimated to be $17 billion.

In Southeast Alaska, historical gold-producing areas near Karta Lake on Prince of Wales Island, the Cleveland Peninsula, the Chichagof and Hirst Chichagof on Chichagof Island, Mansfield Peninsula on Admiralty Island, Berners Bay area, Douglas Island, and Hyder, as well as the entire length of the Juneau gold belt, are being reexplored. Copper, lead, and zinc deposits at Tracy Arm, Sumdum Glacier, Woewodski Island, Duncan Canal, and Ground Hog Basin are receiving much attention, and work continues on a barium, zinc, and silver deposit on Admiralty Island. The opportunity for the development of metallic mineral deposits exists throughout major portions of the Chugach National Forest. The opportunity for the development of oil and gas exists in the Copper-Bering River area of the Chugach National Forest and the Yakutat area of the Tongass National Forest.

On non-National Forest System lands in Southcentral Alaska, mineral occurrences appear to be concentrated around Chignik and Kodiak Islands. Gold, silver, copper, lead, zinc, chromite, and platinum have been found. Nonmetallic minerals, such as coal, are found near Chignik, sulfur at

Stepoval Bay, and pumice deposits adjacent to volcanic areas. Chignik and Kodiak Islands are rated as having high metal concentrations.

The Kenai Peninsula and the Prince William Sound areas have been explored for copper, gold, and silver. Gold is present in most streams of the mainland, though the Kenai Peninsula receives most of the impact because of its accessibility by highway. Recent studies by the Bureau of Mines in Prince William Sound indicate that several areas previously unexplored have good potential for placer gold.

Coal was discovered in the early part of the century near Kushtaka Lake, and subsequent drilling indicates reserves that are estimated at 3.6 billion tons. Three applications for prospecting leases, totaling about 69,000 acres, are being processed. There are 48 applications for noncompetitive oil leases pending, covering an area on the west side of the Copper River. Most leases are for 2,560 acres, and approximately 59,000 acres are involved. An area from Copper River to the north to Icy Cape near Cross Sound has been designated a Favorable Petroleum Geologic Province. In the future, oil and gas lease sales will be scheduled for the Forest Service portion of this area. Lease sales are also being made on the Outer Continental Shelf west and southwest of Yakutat.

There is considerable potential for geothermal energy throughout both Southcentral and Southeast Alaska. Two of the largest areas, Mt. Katmai and Mt. Wrangell, neither of which are in National Forests, are considered to have extremely high potential. In addition, there are some 25 active and inactive volcanoes throughout the area that have a high geothermal potential.

National Forest System lands are open to mineral entry and location, unless specifically withdrawn. They are also available for mineral leasing, unless specifically withdrawn or unless it is determined through environmental analysis that leasing is incompatible with other resource values. On January 1, 1984, 2,374,000 acres of wilderness will be withdrawn from mineral entry and leasing, as provided in the Wilderness Act. On December 2, 1980, the Alaska Lands Act permanently withdrew national monuments in Alaska from mineral entry, location, and leasing, subject to valid existing rights. The Act also withdrew from entry minerals within the Copper/Rude River addition to the Chugach National Forest and made them available for leasing.

Assumptions

1. Mineral exploration and development will increase, adding to the economic base of Alaska.

2. New mineral deposits will be discovered. With these discoveries, and prior to actual mining, towns or camps will be constructed, as well as ore concentrating facilities, tailing impoundments, waste dumps, power sites, and dams.

3. Mineral sources previously considered uneconomical will become marketable.

4. Oil and gas exploration and development will increase significantly in the Yakutat and Copper River areas.

5. An increased effort will be required to identify and implement protection measures needed to minimize environmental impacts relating to mining and to oil and gas exploration and development projects.

6. Sand, gravel, and rock will continue to be in demand throughout the National Forests.

7. Coal exploration and development will begin in the Bering River area.

8. Geothermal development is not a viable development option in the foreseeable future.

9. Requests for access to National Forest System lands in support of off-shore oil and gas activities are expected.

Recreation

Current Situation

The National Forests of the Alaska Region contain a remarkable and unique array of recreation attractions, including abundant wildlands, huge glaciers reaching to the sea, protected inland waterways, rugged coastlines, hundreds of islands, fiords, free-flowing rivers, an unusual variety of wildlife and fish, and other features that cannot be found elsewhere in the United States. These features, along with the Region's generally low population density, impart a feeling of vastness and wildness that is becoming increasingly difficult to experience elsewhere. This is a primary part of the Region's appeal to both visitors and residents.

While still predominantly undeveloped, the National Forest System offers visitors a wide spectrum of recreation opportunities, ranging from primitive to urban. (See Glossary in the EIS.) Many of the primitive and semiprimitive settings will remain so. Of the 22.7 million acres now contained in the Tongass and Chugach National Forests, 23 percent, or 5.4 million acres, has been added to the National Wilderness Preservation System on the Tongass National Forest by the Alaska Lands Act. 171,000 acres are in nonwilderness national monument status. 285,00 acres have also been released from the Land Use Designation (LUD) I by not being included in formal wilderness designation. The allocation of these areas to other LUD's has not yet been done. In addition, 16 percent, or 2,656,000 acres on the Tongass National Forest, have been allocated to Land Use Designation (LUD) II and will be managed to limit road building and development activities. Ninety-one percent, 5.3 million acres, of the Chugach National Forest, is being analyzed for wilderness potential in the development of the Chugach Land Management Plan. Numerous other lands, such as noncommercial forest and alpine areas that lie within areas scheduled for development actions, will also remain primitive or semiprimitive in the long run. The remaining widely distributed primitive and semiprimitive lands, which make up roughly one-third of

the Region, will be modified gradually by development activities to satisfy other multiple-use goals.

Scattered private parcels are located in protected bays and along shorelines or, in the case of the Kenai Peninsula, along the road system. Much of the private land within the above-mentioned areas is currently undeveloped. As these lands are developed, they will influence the character of the recreation opportunities available on public lands. In the future, there will be very few major bays that do not have some development in them, such as cabins or small resorts.

Most of the Forest Service's approximately 200 public use cabins, 40 private recreation cabins, 8 privately operated public resorts, and 600 miles of trails are located in recreation settings that are considered semiprimitive or roaded natural. In addition, there are numerous resorts and cabins on private land within the National Forests.

Portions of the numerous protected waterways of Southeast Alaska and Prince William Sound are regarded as in-place recreation highways and byways by many coastal Alaskans, who use small boats and floatplanes as logical substitutes for land-based recreation vehicles. When combined with existing forest road systems, these marine "roadways" (as well as inland lakes) provide access to a majority of National Forest System lands. The fact that visitors can travel to many areas of two largely undeveloped forests is a unique aspect of the management situation in the Alaska Region. In contrast to their counterparts in the lower-48 States, forest visitors are much less dependent on roads for primary access to Alaska's National Forests. However, they often face difficulties or challenges in reaching their chosen destinations, given the variability of weather and marine conditions and the related limitations, including cost, of airplanes and boats. With the major exception of the Kenai Peninsula portion of the Chugach National Forest, the common use of boats and planes has a strong bearing on why a majority of the dispersed recreation use within the Region occurs along the coastline and around inland lakes.

Because of dependence on air and marine transportation, visitors often have little or no direct contact with the land. To enhance their experience and understanding of the forest environment, the Forest Service, under a cooperative program with the State of Alaska, provides an interpretive program for one-day and overnight trips on the State ferries traveling the Alaska Marine Highway.

There also are a fair number of rural settings on National Forests, particularly in close proximity to existing communities. These areas serve as both visitor destinations and points of departure. National Forest recreation facilities within such settings include 26 campgrounds, 28 picnic grounds, 3 visitor centers, 21 interpretive sites, and 3 ski areas. There are two ski areas, the Alyeska and Turnagain Pass, on the Chugach National Forest. The lands of Eaglecrest ski area located within the Tongass National Forest were recently conveyed to the State of Alaska and the City and Borough of Juneau. Turnagain Pass is managed primarily for cross-country skiing and snowmobile use, while the other two are

downhill skiing areas. All of these facilities are accessible by Forest Service and State road systems. Most of the facilities are 10 or more years old, and many of them are in need of rehabilitation. In addition to Forest Service facilities, there are campgrounds and visitor centers operated by the State, Alaska Natives, or private parties.

Protection of scenery along inland waterways, road systems, and around communities is particularly important to tourists and local residents. In a recently completed tourship survey, scenery was chosen as the main reason people are using tourships in Alaska. Research also has shown that the majority of advertising space for Alaska is spent on promoting natural features. Forest Service policy in Alaska, as well as nationally, recognizes the importance of managing for scenic quality in all Forest uses and activities. This is implemented through assigning visual quality objectives that are related to land areas based upon their public sensitivity and visual qualities.

It is estimated that about 7 percent of the Tongass National Forest has been altered by some form of development, most of which has occurred during the last 25 years. About 5 percent of the Chugach National Forest has been affected by development activity that has occurred since the turn of the century. Under past management, opportunities to spread developmental effects over a much broader Regional land base were available. However, future development will be concentrated in a smaller portion of the Region's National Forest System land base. Much of this area includes primary marine travel routes and other public use areas in close proximity to communities. The potential for conflict with timber harvest development in these areas may increase, given the established Alaska Lands Act allocation pattern and timber volume mandate (4.5 billion board feet per decade from the Tongass Forest). Maintaining visual quality on boat travel routes is complicated by the technical requirements for harvest and silviculture on steep slopes.

The National Forests are naturally suited for dispersed recreation activities, in which participants range over fairly large areas. These activities, such as boating, tourship travel, fishing, beachcombing, hiking, tent camping, photography, and hunting accounted for about 78 percent of the 3 million recreation visitor days of use in Alaska's National Forests in 1980. In coastal Alaska, the majority of recreation use occurs in a narrow band along the saltwater shorelines. The Forest Service maintains a number of recreation cabins, floats, and anchor buoys to facilitate this marine-oriented recreation use. Commercial public service facilities have been developing on private lands as the demand makes these facilities economically feasible. The prime focus for recreation management in Alaska's National Forests will be on the provision of appropriate recreation settings in which to accommodate current and anticipated dispersed recreation use. There is a need for information that can be supplied in the form of maps and leaflets to help orient visitors to the equipment and techniques necessary to use the available opportunities.

A coordinated system of marine recreation facilities has been proposed in Southeast Alaska and Prince William Sound to meet the needs of the boating public. Marine sites and facilities developed over the last 40 years by

the Forest Service will be incorporated into this system and will constitute the core of the Forest Service effort. The system would cover a wide spectrum of facilities and sites ranging from sheltered, natural boat anchorages with no manmade improvements to anchorages with mooring buoys and others with floating docks and/or land-based facilities such as tent pads, saltwater access to trails, or possibly a resort. Development of this system will require close coordination among the Forest Service, State, cities, boroughs, Native corporations, and private landowners.

Developed area recreation involves activities that are concentrated in relatively small areas. Such activities include downhill skiing, picnicking, camping, visitor interpretive sites, and resort lodging, and account for the remaining 22 percent of the recreation use within the Forests. Because of the ongoing transfer of National Forest System lands to the State and to private ownership under provisions of the Alaska Native Claims Settlement Act and the Alaska Statehood Act, the future role of the Forest Service as a prime provider of developed sites for community-related recreation use will be diminished.

Recreation use traditionally radiates from a community or a cluster of services (service center). This is especially evident in coastal Alaska, where jet airplanes, State ferries, and cruise ships provide transportation links between development locations. During the 1970's, new resorts and their recreation services have developed steadily in or adjacent to the communities. Many of the communities view tourism as a way to broaden their economic base or to grow beyond subsistence-level economies. The challenge to National Forest administrators is to adjust programs so that National Forest opportunities and services complement those offered by State or private landowners. Cooperative planning and scheduling will be increasingly important.

Resorts have also been slowly developing in more isolated locations. While these traditionally are marginal economic operations, they provide worthwhile public services, a safety margin to travelers, and a lifestyle for the operator. There are numerous salmon canneries, salteries, homesites, homesteads, fox farms, or remnants of other activities that were abandoned many years ago. These private lands were selected for their proximity to good fishing areas, water supplies, or good anchorages, and they are prime development sites. In addition, thousands of acres of land in outlying areas have been selected by Native groups. One concern that has been expressed by some private landowners is that the National Forest System lands not be developed in competition with them. Another concern is that private land development will gradually change the character of coastal areas from its present semiprimitive character to one of a more rural, sparsely populated character.

It is estimated that total recreation use in the Forests may increase to 3.7 million recreation visitor days by 1985. Continuing growth in total recreation use is projected through 1990 and beyond. The majority of the projected increases are expected to be in dispersed activities, with developed site use growing at a much slower rate. Much of this projected growth is linked to tourism, which has been growing at a 10- to 15-percent annual rate on a statewide basis and is now the State's second largest

industry. Resident recreation use, which is strongly tied to changes in population, is projected to grow at a rate slightly faster than population growth. Table 2-7 displays recreation use in 1980. Included are the facilities in support of marine recreation.

Table 2-7

Recreation Use
(Thousand Recreation Visitor Days)

Developed Recreation Areas	Stikine	Chatham	Chugach	Ketchikan	Region 10 Totals
Observation, Playground, Sports Sites	6	12.6	26.2	0	39.4
Boating, Swimming Sites	0	3.4	1.1	0.3	4.8
Campgrounds	12.5	58.9	140.5	37.3	249.2
Picnic Areas	5.3	45.0	1.9	7.1	59.3
Lodges	0	0.8	21.5	0.5	22.8
Organization Sites	0	10.9	4.6	0.3	15.8
Recreation Residences	0	8.4	13.8	0.5	22.7
Winter Sports Sites	0	32.5	69.2	0	101.7
Interpretive Sites	0	20.7	19.9	1.3	41.9
Recreation Cabins	9.3	31.2	30.5	15.5	86.5
Subtotals	27.7	224.4	329.2	62.8	644.1
Dispersed Recreation Areas					
Recreation Roads	8.7	80.0	224.0	15.6	328.3
Recreation Trails	3.5	49.1	226.9	3.1	282.6
Ocean, Salt	462.8	543.1	55.8	172.8	1,234.5
Lakes, Ponds, Reservoirs	7.9	65.1	15.6	17.5	106.1
Rivers, Streams	26.4	24.8	28.9	13.3	93.4
General Undeveloped	44.2	141.4	79.5	40.6	305.7
Subtotals	553.5	903.5	630.7	262.9	2,350.6
Regional TOTAL	581.2	1,127.9	959.9	325.7	2,994.7

Source: Fiscal Year 1980 Recreation Information Management Outputs.

Assumptions

1. The combination of unique recreation resources in coastal Alaska will receive increasing local, State, national, and international attention and use.

2. Recreationists and principal route travelers will demand higher quality scenery management, with a minimum of obvious modification resulting from increased development, because of the high costs they sustain to travel and view the scenery.

3. Most private land will be developed to some degree over time, thus fulfilling the demand for additional private recreation residences, marinas, resorts, and other accommodations.

4. All modes of transportation will increase and operate at full capacity to meet increased tourism demands. However, the capacity of the Alaska Marine Highway System will limit road-oriented recreation equipment in Southeast Alaska.

5. Tourship excursions to Southeast Alaska will increase, taking greater numbers of visitors through the Forest.

6. There will be additional ferry service to smaller island communities, resulting in more visitors using the surrounding areas.

7. The number of pleasure boats with overnight accommodations will continue to increase. Use will radiate from communities to more remote forest areas.

8. Some visitors who arrive via the Marine Highway will have recreational camping vehicles and cartop boats, allowing them to utilize recreation opportunities accessible from the road systems.

9. Demand for off-road vehicle use (especially snowmobiles) will increase.

10. Cultural and historical resources will receive increased public interest and visitations.

11. Most development will occur on commercially timbered forest land. In addition to timber production, significant portions of these timbered lands, especially coastal shorelines, will continue to be in demand for recreation and scenic values, because of their quality, saltwater access, or other features.

12. The demand for a variety of trails will increase, with emphasis on less developed or primitive trails.

13. The demand for viewing and photographing wildlife in natural surroundings will increase, particularly in more accessible areas. Seabird colonies, bald eagles, mammal rookeries, and viewing areas for brown bear, mountain goat, and waterfowl will serve as foci for this trend.

14. Higher fuel costs and inflation are likely to change use patterns over the long term (for example, concentrating use around communities or extending overnight trips).

15. New land-use allocations and State and Native selections are likely to increase use concentration on National Forest System lands.

16. Adventure tours, such as wilderness packages, will continue to be the fastest growing sector of the tourism industry.

17. To broaden their economic base, communities will provide accommodations and services to the recreation visitor.

18. State grant monies will continue to be available to communities for recreation facilities.

19. There will be an increase in the number of people who visit National Forests in Alaska, with the principal objective being enjoyment of the recreation and scenic resources.

20. Recreation use will increase in proportion to population and income growth in Southeastern and Southcentral Alaska. Nonresident use is expected to increase at historical rates (10 to 15 percent statewide) throughout the 1980's.

21. Liability and management costs will cause private landowners to limit free public use of their lands.

22. Conflicts will increase between user groups because of increased participation in activities that, by their very nature, conflict. This will occur most often in areas adjacent to communities.

23. There will be a need for management plans and increased focus on recreation-related administration of designated wilderness areas.

24. Changes in land jurisdiction or ownerships will affect access development and types of future management.

25. Future economic developments will alter available recreation opportunities or will reduce the potential for some opportunities.

26. Visitors will generally be using mass-mode transportation systems (such as commercial airlines, tourships, and ferries) both as a time- and cost-saving measure.

27. There will continue to be a shift in the type of persons vacationing in Alaska, from retired persons to middle-aged persons from professional and managerial groups, who actively seek recreation experiences beyond the traditional cruise ship voyages and city sightseeing tours.

28. Much of the private land will move toward its highest economic use over time.

29. Conflicts between wildlife and recreation use will increase.

30. The public will continue to demand that recreation be given equal consideration as a National Forest resource.

31. Logging roads connected with communities will receive increased recreational use.

Wilderness

Current Situation

A total of 56,393,000 acres of Federal lands in Alaska became wilderness on December 2, 1980, with the signing of the Alaska Lands Act. On the Tongass National Forest, where the land management plan is complete, the areas shown in Table 2-8 were designated as wilderness.

Table 2-8

Wilderness Areas in the Tongass National Forest

Wilderness Area	Acres[1]
Admiralty Island National Monument	937,000
Coronation Island	19,000
Endicott River	99,000
Maurelle Islands	5,000
Misty Fiords National Monument	2,142,000
Petersburg Creek-Duncan Salt Chuck	47,000
Russell Fiord	349,000
South Baranof	320,000
South Prince of Wales	91,000
Stikine-Leconte	449,000
Tebenkof Bay	67,000
Tracy Arm-Fords Terror	653,000
Warren Island	11,000
West Chichagof-Yakobi	265,000
TOTAL Acreage	5,453,000

[1]Acreages have been rounded to the nearest thousand and were calculated on October 17, 1981, as part of developing official boundary maps. In addition to the acreage displayed here, there are 171,000 acres that have nonwilderness, national monument status on the Tongass National Forest.

The Draft Land Management Plan has been released for the Chugach National Forest. A supplement, which contains additional information on the wilderness question, has been prepared. Ninety-one percent of the Forest, or 5.3 million acres, is being evaluated for possible wilderness recommendation by the Forest Service. Table 2-9 shows the areas under consideration.

Table 2-9

Areas Being Examined for Wilderness on the Chugach National Forest

Area	Acres
Nellie Juan-College Fiord Wilderness Study Area (Area includes 477,400 acres in the second Roadless Area Review and Evaluation (RARE) II further planning category)	1,948,000
Additional areas identified in RARE II for further planning	2,257,000
Copper/Rude River (addition to the Forest from the Alaska Lands Act)	1,052,000
Controller Bay (addition to the forest from the Alaska Lands Act)	11,000
TOTAL	5,268,000

The Alaska Lands Act made Alaska wilderness subject to the Wilderness Act of 1964. While the 1964 Wilderness Act provides the flexibility to allow existing uses to continue in an area, the Alaska Lands Act specifically authorizes a number of uses to minimize effects on current users of the land and to provide for facilities necessary for certain types of economic development in the area. Special emphasis is to be given to minimizing effects on rural residents who have a subsistence lifestyle. Existing public-use cabins within wilderness may be permitted to continue and may be maintained or replaced. New public-use cabins and shelters may be constructed if necessary to protect public health and safety. The Act recognizes the critical role that Federal lands, including wildernesses, play in meeting wildlife and fish habitat needs. Thus, the continuation of existing uses and the future establishment and use of temporary campsites, tent platforms, shelters, and other temporary facilities directly and necessarily related to the taking of wildlife and fish also are permitted, subject to reasonable regulation.

Section 507(a) of the Alaska Lands Act mandates a cooperative fisheries planning process involving the State of Alaska, the Forest Service, and the nonprofit regional aquaculture associations. The process will examine fisheries enhancement needs and opportunities forest-wide, and will explore interrelationships between fisheries enhancement opportunities and other resource uses, such as wilderness or other recreation uses. The process is scheduled to begin during 1983 and be completed by fall of 1984.

Decisions to allow or not to allow particular fisheries enhancement projects in designated wilderness will be made through the NEPA process, which will include identification and evaluation of nonwilderness alternatives, if available, and the relative impact of the proposed action on wilderness. There will be an ample opportunity for the public to participate. Wilderness plans will be amended to allow those enhancement activities selected in the EIS Record of Decision.

Until this process is completed, lake enrichment, fish stocking, and stream clearing projects will be authorized in wilderness. Other types of projects will be included on a case-by-case basis. However, projects which were previously approved under wilderness study criteria will be allowed to continue.

Permits for temporary facilities needed in connection with fisheries research, management, or enhancement/rehabilitation projects may be issued by the Forest Supervisor. Permanent facilities require Regional Forester approval. Any authorized facilities shall be constructed in such rustic manner as to blend into the natural character of the area and shall be limited to those essential to the authorized activity. Camps should be located a sufficient distance from attractions or important travel routes to avoid conflicts with other visitors.

The National Forest wilderness and study areas are representative of a cross-section of landforms, flora, and fauna of Southeast Alaska and Prince William Sound. However, they do have many things in common from a management standpoint. For example, the lower elevations are typically hemlock-spruce forests with moderate brush, making hiking difficult, except on maintained trails. Hence, human use of these areas is usually concentrated along the areas of convenient access; an exception is the study area in Prince William Sound, where hiking areas are more accessible. This primarily involves the saltwater shorelines and lakes that are large enough for floatplanes to land on. Relatively few rivers are large enough for extended trips involving power boats, kayaks, or rafts.

Because the wildernesses include only those National Forest System lands above mean high tide, a long-term management concern will be the management and use of adjacent lands and waters. Most of the wildernesses have some private land within them, representing a small percentage of total acreage, yet sometimes occupying key development sites. Any development of inholdings will change the character of and the sense of isolation and solitude in the adjacent bay and upland areas. Tidelands are managed by the State of Alaska, and compatible management is essential to maintain the wilderness character of these critical public-use areas. Finally, public use of saltwater travel routes, which frequently traverse wilderness areas, will gradually grow, changing the character of the experience the public receives from wilderness in important saltwater shoreline areas.

The Alaskan Public Survey (1979 interagency survey of Alaska residents) concerning the importance of the State's natural resources, has pointed out the importance of natural environments to Alaska residents by ranking the 12 reasons why Alaskans come to or remain in the Region. In order of

importance, being close to a wilderness environment was rated first in Southeast, third in Southcentral, and fourth in Interior Alaska. This same survey summarized the factors that would detract from enjoyment of favorite recreation sites in a wilderness that is visited because of its sense of isolation and remoteness. Roughly 75 percent of respondents ranked new buildings, new roads, mine tailings, log storage, and more recreationists as detracting from their favorite site. Aircraft, shipping traffic, and commercial fishing ranked lower as detracting factors. The survey also ranked appropriate uses in a wilderness environment; see Table 2-10, which follows. (See Alves, et. al., for a detailed analysis of Alaska Public Survey data.)

Table 2-10

Alaska Public Survey Results, 1979

Use	Percent of respondents who say that the use should be:		
	Generally Allowed	Strictly Regulated	Banned Altogether
Allowing floatplanes and ski planes to land	76	20	4
Travel by snowmobile	30	49	20
Travel by dirt bike	21	45	35
Building fish hatcheries	64	31	5
Building public cabins	57	35	8
Building commercial lodges	19	48	33

The Alaska Public Survey reflects opinions on natural environments and not necessarily legislated wilderness. In addition to the lands that have been formally designated as wilderness by Congress, many other areas will continue to provide de facto wilderness opportunities. These include areas that have been allocated to amenity-oriented management purposes, such as LUD II areas on the Tongass National Forest, and areas with a low potential for developmental activities because of their natural characteristics, such as icefields, excessively steep lands, and areas lacking economically valuable resources. Areas allocated for commodity production purposes also will continue to provide wilderness-like opportunities until actual developmental activities commence.

Assumptions

1. The Chugach Land Management Plan will recommend lands for additional formal wilderness classifications.

2. A variety of facilities and uses, such as hunting, cabins, navigation aids, and trails, will continue to occur in the Region's newly classified wilderness areas.

3. Alaska Lands Act wilderness use policies represent a balance between competing national interest groups.

4. Wilderness will continue to be controversial, as some interest groups will strive to expand the National Wilderness Preservation System in Alaska, while others will attempt to declassify existing units.

5. The Wilderness Act and other direction will continue to be controversial in the implementation of wilderness use policies, as contained in the Alaska Lands Act, because of differing perceptions as to how wilderness should be managed.

6. As transportation systems are expanded or transportation costs are reduced, wilderness will be subject to increased use.

7. Where wilderness areas have been designated, use will increase in those areas because of increased publicity.

8. In the long run, as other portions of the forests are further developed, wilderness will become more important for primitive recreation opportunities, research, and other activities associated with relatively undisturbed natural areas.

Cultural Resources

Current Situation

There are about 1,500 known historical and prehistorical sites or objects in the Alaska Region. The Region's cultural resources span nearly 10,000 years of history and prehistory, shedding light on the earliest known inhabitants of the Chilkat Peninsula and Baranof and Prince of Wales Islands; on the historic era when Eskimos and Indians were first encountered by the Russian, and later European and American, explorers, traders, and colonists; and on the Euro-American settlers themselves. The variety of cultural resources present is great, illustrating both Native adaptations (villages, camps, fish weirs and traps, petroglyphs) and European and American economic, social, and political activities (military installations, trading posts, canneries, sawmills and other industrial remains, fur farms, homesteads, and mines).

Archaeological investigation began in the Alaska Region in the mid-1930's, but has been conducted only sporadically since that time. Although historical and prehistorical sites are abundant, there has been little consistent effort on the part of the academic community to study the cultural record that these sites preserve. This situation may improve as land status is resolved under the Alaska Native Claims Settlement Act and as Forest Service archaeologists bring the potential for cultural resource research to the attention of archaeologists in the private sector. The difficulty of locating many cultural resources and the high costs involved will continue to restrict archaeological investigations.

However, public interest in the Region's cultural resources is high. Museums and heritage centers featuring and interpreting artifacts and history attract many visitors during the tourist season, and local programs in history and archaeology are well attended.

Currently, there are eight National Forest properties listed on the National Register of Historic Places, which is the Federal roster of cultural resources that are significant on the national and local level. Additional sites have been determined to be eligible for listing by the Keeper of the National Register. Four of the properties listed on the National Register of Historic Places also have been entered on the National Register of Historic Landmarks, a roster of sites considered to be of great significance to the history and cultural heritage of the Nation. These properties are designated National Historic Landmarks (NHL). (See Table 2-11.)

The current Forest Service cultural resource program emphasizes compliance with environmental and cultural resource statutes and regulations by identifying and protecting the resource in advance of ground-disturbing activities. Cultural resources are evaluated for eligibility to the National Register of Historic Places when disturbing activities may have an effect on them.

Table 2-11

Historic Sites in Alaska

Sites on the National Register of Historic Places
Chugach National Forest
Palugvik Site (NHL)
Chilkat Oil Refinery
Hirshey Mine
Alaska Railroad Tunnel No. 1
Bering Expedition Landing Site (NHL)
Tongass National Forest
Storehouse No. 3 (Ketchikan)
Fort Durham (in part Chatham) (NHL)
Skagway Historic District and White Pass (in part Chatham) (NHL)

Sites Determined To Be Eligible by Keeper of the National Register
Tongass National Forest
Crab Bay Petroglyph (Chatham)
Hidden Falls Site (Chatham)
Coffman Cove Archaeological Site (Ketchikan)
Chugach National Forest
No Sites

Interpretation of specific cultural resources has received minimal emphasis until recently, because of the difficulty of monitoring and protecting

sites far removed from population centers and transportation routes. The recent inception of a Regional cultural resource publication series is a major step for changing this situation. There is a need for development of cooperative protection and management agreements with State, Native, and other private owners of cultural resources to guard against theft, vandalism, and other unauthorized disturbances to the Region's cultural resources.

The passage of the Alaska Native Claims Settlement Act and the Alaska Lands Act has set in motion large-scale changes in land-use and ownership patterns. These changes will have a significant effect on the Region's cultural resource management program. The immediate potential effect of the Alaska Native Claims Settlement Act might be to place as much as 20 percent of the Region's inventoried cultural resources into private (Native Regional and Village corporation) or State ownership. Under the Alaska Native Claims Settlement Act, Native Regional corporations may select historical sites and cemeteries. To date, about 250 sites have been identified for selection.

The Alaska Lands Act has added a small number of cultural resources on the lands transferred to the National Forest System. The major effect, however, derives from the designation of large acreages of wilderness in the Tongass National Forest. This will have two effects: activities having the potential to disturb or destroy cultural resources will be concentrated into a smaller land base; and cultural resources in designated wilderness areas, while afforded greater protection from ground-disturbing activities, are generally managed purely for preservation.

Assumptions

1. Relatively few of the cultural resources in Alaska have as yet been discovered.

2. Public interest in cultural resources will increase.

3. Mining, timber harvest, and other land management activities that have the potential to disturb or destroy cultural resources will increase.

4. In the absence of countermeasures, vandalism to cultural resources will increase.

5. There will be an increase in requests for cultural resource management assistance from the private sector.

Transportation

Current Situation

The transportation and utility network in Alaska is largely undeveloped. This was recognized by Congress in the Alaska Lands Act, which contains special provisions for development of transportation and utility systems in Alaska. Vast land areas, sparse populations, and unique topography

continue to dictate uncommon solutions to transportation needs, such as the use of rock overlay road construction and the construction and operation of terminal transportation facilities between land and water-based transportation.

The Forest Service plans, designs, and constructs transportation systems to support various resource activities and to provide access for management, use, and protection of National Forest System lands. Proposals for the development of other major arterial highway systems generally come from local communities and the State of Alaska.

Resource-oriented activities, such as timber management, fish and wildlife habitat improvement, and recreation, may require some form of access. Roads presently serve most of the developed recreational campgrounds, picnic areas, and visitor centers. Visitors to remote recreation cabins gain entry primarily by floatplane, although some cabins are accessible by boat. The waterways and thousands of miles of shoreline of coastal Alaska also provide small boat access to millions of acres of dispersed recreation areas. Hiking trails are in greatest demand adjacent to communities, although, in some cases, minimal trail maintenance greatly reduces their use. In some cutover areas, old logging roads provide access to certain types of recreation activity. In most cases, however, the difficulties associated with getting vehicles to remote road networks restricts road use to foot traffic and an occasional trail bike.

Management of timber resources may require several modes of transportation that result in extensive road networks, different log yarding systems, and a determination of the water transport method that is most compatible with all resources. Prospecting, development, and processing of mineral resources also can require the development and use of various methods of transportation, including aerial trams.

High transportation development costs in Alaska require that timber be removed in large quantities during the first cutting entry to pay for road construction. Road construction prior to logging can provide more flexibility for selecting silvicultural methods that meet resource objectives more effectively. In addition, many areas that are marginal economically could be made accessible, thus providing opportunities to increase timber production or reduce pressures on currently accessible drainages.

Most communities in this Region have no land transportation connections to other communities. Almost without exception, those land corridors that do exist are narrow and confined to the coastal zone and river valleys. The scarcity of natural land transportation corridors makes marine corridors exceptionally valuable resources. These corridors are well-defined in Southeast Alaska and follow the fiords, straits, and passages that penetrate the rugged mountains of the mainland and separate the large islands of the Region.

Terminal transportation facilities serve as an interface between land and water-based transportation systems. While the largest percentage of use is for movement of timber, the facilities can be used for the movement of

other goods and services as well. Terminal transportation facilities are necessarily located on tidelands owned by the State of Alaska. Thus, transport access is achieved through agreement of the several State agencies involved in the issuance of the State tidelands permits and leases. Permits from the U.S. Army Corps of Engineers also are required.

Proposals for roads linking isolated communities to other areas have met with varying degrees of enthusiasm. Responses range from strong opposition to any road access to legislative petitions encouraging highway construction. Human needs and varying lifestyles require differing forms of transportation between outlying communities and the rest of the world. Development and use of forest resources to enhance or strengthen an economic base for Alaskan communities requires some form of transportation. The construction of roads to access National Forest System lands can provide the basis for road connections between communities. Various transportation alternatives must be critically examined, and communities that may be affected by changes in transportation patterns must be fully involved in the planning process.

Transportation systems must be planned in conjunction with overall land management plans to coordinate differing resource objectives. Land-based segments of the system are usually constructed in connection with project plans, such as individual timber sales. Long-term transportation planning involves consecutive developments that improve a transportation system over time. It must be sufficiently flexible to accommodate changing community needs, changing trends in land uses and values, and rapid evolution in the technological state-of-the-art. Consideration of effects on other resources, economics, and future maintenance are a part of the planning process.

The Forest Service has cooperated with various State agencies, including the Alaska Department of Transportation and Public Facilities, in planning transportation facilities. As a principal land manager in Alaska, the Forest Service participates in the State's Regional transportation planning process. In addition to activities related to road, air, and port facilities directly associated with the management of forest resources, the Forest Service participates in interagency planning, project development, design, and construction of Regional highways, and local air and port facilities constructed on land managed by the Forest Service. State and local plans of various types estimate the transportation needs for Southeast Alaska and help to identify places where cooperative State and Forest Service construction and maintenance efforts will meet joint objectives.

The Forest Service also is cooperating with the Alaska Power Administration and the U.S. Army Corps of Engineers to develop a plan for hydroelectric development. Regional corridors may be identified and utilized for transportation, power transmission, and communication purposes. With few exceptions, power is now produced locally, and most communication is effected by microwave transmission. There is, however, a growing public demand for development of Regional land corridors.

Assumptions

1. Recent minerals exploration indicates that transportation facilities associated with mineral development can be expected to increase.

2. Utilization of natural land corridors for transportation development will conflict to some degree with other resources, including wildlife or fish habitats, wilderness, and backcountry recreation.

3. The mere existence of a road or road network tends to produce a ripple effect that generates demand for uses other than those originally intended. Fulfilling such demands can lead to greater secondary and cumulative economic and environmental effects than those caused by the initial road development.

4. The need for roads, trails, airports, and ferry terminals will grow in proportion to increased population and resource development and use.

5. Expanded and intensified recreation activities will increase use of existing transportation systems.

6. Regardless of the method of logging, roads will continue to play a role in the harvest and removal of timber.

7. Demand for trails will continue to increase.

8. Recreational boating will continue to increase. Demand for anchorages, mooring buoys or floats, and shore facilities will increase accordingly.

9. Transportation corridor development may be critical to the economic and social well-being of Southeast Alaska.

10. Population will continue to grow and will exert increasing demand for transporting passengers and freight on the land, sea, and air travelways between communities throughout the Region.

11. There will be requests for transportation and utility system access to or across conservation system units.

12. The development of natural corridors for transportation facilities will affect other resources in the area.

13. Air and marine transportation modes will predominate during the foreseeable future.

Facilities

Current Situation

The Forest Service presently operates administrative sites in more than 25 locations in Southcentral and Southeast Alaska. These locations range from the centralized Regional office, located in Juneau, to isolated work centers situated throughout the two National Forests. Most of these administrative sites are staffed on a year-round basis and require certain specific maintenance and operational procedures to remain functional. Besides administrative sites, the Forests maintain approximately 200 public recreation cabins scattered throughout the Region and two visitor centers at Portage and Mendenhall Glaciers.

In support of these sites, numerous support facilities are required, including boat and floatplane docks, water and sewage treatment plants, and (in certain remote locations) power-generation buildings. Many of the buildings occupied by the Forest Service in the Region are either over-aged wooden structures, with numerous deficiencies, or temporary mobile homes that have been pressed into administrative use. Expanding requirements for overall management, in particular to support an intensified timber program, have increased administrative staffs and have greatly overloaded existing facilities.

The Forest Service has developed the Thirty-Year Facility Needs Report for the Alaska Region to provide direction in solving the lack of administrative and operational space requirements. The plan specifically addresses individual Forest and area requirements and covers the period from 1980 to 2010. A specific needs assessment has been developed covering the immediate 10-year period. Overall assignment has been made on the "complete system" concept, examining not only buildings, but also support facilities and services. Concern for incorporation of nonfossil energy sources and innovative construction technology, suitable for the Alaskan climate, has been addressed in this report. It is envisioned that both will be utilized in future site developments. Because the Forest Service operates extensively in rural areas, development in those areas will continue to be a vital concern to the Region.

Assumptions

1. Administrative structures and preselected facility sites will remain essentially static.

2. All local, State, and Federal requirements for facility development will be adhered to.

3. Both administrative and living facilities will be maintained at a standard to meet the needs of the Forest Service and assist in providing a suitable environment in which to conduct business.

4. Administrative sites will be located as close as economically feasible to work sites, to reduce extensive flying time, and to reduce employee and family concerns over the distances and hazards between sites and work areas.

Lands

Current Situation

In the context of National Forest management, the term "lands" covers landownership, land adjustments, partial interest grants and acquisitions, and land occupancy authorizations. Because National Forest System landownership has been relatively stable, past land programs have been limited in scope and directed primarily to occupancy authorizations for various uses. However, landownership patterns are changing rapidly, and program emphasis is changing accordingly. Implementation of the Statehood Act, the Alaska Native Claims Settlement Act, and the Alaska Lands Act has brought about the dramatic change in landownership in the Region.

The Alaska Native Claims Settlement Act of 1971 (ANCSA) granted the Native peoples of Alaska, including the Aleuts, Eskimos, Athabascans, Tlingits, Haidas, and Tsimshians, the right to select 44 million acres of Alaskan land. Village corporations were established to select and manage village settlement lands. Twelve Regional corporations were created to manage Native Regional resource lands and subsurface resources of village lands. A thirteenth corporation authorized by the Act is not eligible to receive land.

This Act has significantly altered landownership patterns on National Forest System lands. 409,152 acres of Tongass National Forest System land and 314,110 acres of Chugach National Forest System land had been conveyed to Native Village and Regional corporations by November 1, 1981. More than 280,000 acres, to be selected from National Forest System lands, have yet to be conveyed to fulfill Native land entitlement authorized by ANCSA, which will eventually amount to 1.2 million acres.

Section 1430 of the Alaska Lands Act required a study of landownership and use patterns in the Chugach region of Southcentral Alaska. The purpose of the study, among other things, was to identify lands that could be made available for conveyance to Chugach Natives, Inc., in satisfaction of their land entitlement of some 375,000 acres under the Alaska Native Claims Settlement Act of 1971. The study and subsequent negotiation resulted in the signing of a final settlement agreement on January 7, 1983. Of the total 375,000-acre entitlement, some 175,000 acres were identified for conveyance to the Chugach Natives, Inc., from the Chugach National Forest. Lands selected from the National Forest contained a variety of development potentials, including timber, oil, gas, coal, real estate, and other values.

State of Alaska selection under the Statehood Act is another major factor in the changing landownership patterns on National Forest System lands. Under the Statehood Act, the State of Alaska is entitled to select up to 400,000 acres from National Forest System lands in Alaska. Selections must be adjacent to established communities or suitable for community expansion,

community development, or community recreation. By the end of 1981, approximately 242,000 acres had been determined to be consistent with the requirements for State selection. The Statehood Act also granted to the State ownership of tidelands that had previously been in Federal ownership.

The process of identifying the National Forest System lands to be transferred to State and Native ownership will involve temporarily selecting approximately twice as many acres as will eventually be conveyed. These roughly 3 million acres will be withdrawn and managed as though they were going to be conveyed until the actual sites are agreed upon and transfer of ownership is final. This process will take from 5 to 10 years.

In the past, legal Forest Service access to National Forest System lands was simple, because the uplands were under a nearly solid ownership under National Forest administration, with little or no intermingled private land. Tidelands also were federally owned. Recognizing that access to National Forest System land was needed, the Alaska Native Claims Settlement Act provided that easements would be reserved in Native conveyances for those roads and trails that were existing at the time of conveyance. The act also provided for reserving easements for roads or trails that are planned for construction within 5 years of the date of conveyance.

The Alaska Statehood Act did not provide for reserving easements for guaranteed access to National Forest System lands. However, under the authority of the Federal Land Policy and Management Act of 1976, easements can and are being reserved through State selections for roads and trails that are currently in place. This act does not allow reservation of easements for roads and trails planned for future construction.

It is anticipated that Forest Service access needs for the immediate future will be satisfied by the reservation of easements as selected land is conveyed to Native or State ownership. Future access needs will be met by acquiring easements through the normal easement acquisition process.

Since most tideland is now in State ownership, acquisition by the Forest Service of easements where roads or trails end at the tideland will require significant planning and close cooperation between State agencies, the Forest Service and other Federal agencies, and adjacent Native or other private landowners.

National Forest System lands are used under special-use permit authority for a wide variety of special purposes, such as roads, power sites, power lines, resorts, winter sports facilities, industrial sites, communications sites, and private cabins and residences. Many of the privately owned cabins and residences, as well as a few of the other facilities, are on land selected by the State. The State assumes administration of the special-use permits when the lands are conveyed to them.

Special-use permits are issued for these purposes on an annual basis, or by a term permit of tenure appropriate for the particular use, to a maximum of 30 years. Fees are based on fair market value or on a proportionate share of profits. Resort permits are generally issued in accordance with public

need for such facilities. Outfitter and guide permits are issued for all commercial outfitting operations, including services for accommodating guests, transporting persons, and providing supplies.

Agreements, easements, and permits for various activities by new landowners will increase. With adjudication procedures stipulated in the various acts, these private lands may not follow desirable management boundaries. Numerous land exchanges to obtain more manageable boundaries are anticipated. While State and Native lands will be available for many uses historically offered on National Forest System lands, it is anticipated that, as activities on these lands increase, the need for use and occupancy of adjacent National Forest System land will increase. Common transportation systems, access to forest land, and boundary line maintenance and location will require cooperative management between private, State, and city and borough landowners and the Forest Service.

Assumptions

1. Ownership patterns will continue to change until all land entitlements under the Alaska Native Claims Settlement Act and the Statehood Act are resolved.

2. Public needs for National Forest System lands will continue to be accommodated through the special-use permit system for those uses that cannot be accommodated on private lands.

3. A voluntary land exchange and adjustment program will be initiated to provide more easily managed land patterns for both National Forest and private owners.

4. As a result of the intermingled land patterns, the need to obtain and grant rights-of-way for public and private roads and trails will increase.

Pest Management

Current Situation

Pest management activities in the Region are administered under the State and Private Forestry Program. Timber resource losses because of insects and disease are substantial. In Southeast Alaska, they cause loss of tree growth or volume, deformity, top-kill, or actual tree mortality. Insect outbreaks are less frequent than in southern conifer forests, but large areas are involved in the outbreaks that do occur. Relatively few insect species cause these outbreaks.

Historically, old-growth forests in Southeast Alaska have been part of a healthy ecosystem that is capable of replenishing itself following disturbances caused by insects or diseases. In second-growth forests, however, management of insects or diseases may differ. Forest pests may be introduced into the stand by the management practices adopted, and indigenous pest populations may not be acceptable within the scope of resource demands.

The Forest Service is still at the stage of obtaining accurate surveys and evaluations to assess losses from insects and disease and to provide technical management assistance to the State, other Federal agencies, and private landowners. Establishment of a well-coordinated and integrated pest management program between U.S. Department of Agriculture agencies and the State of Alaska is essential. The State is in the process of promoting a strong agricultural development program. At least 50,000 acres per year are expected to come into agricultural production in the private sector, primarily in the Interior and Southcentral areas of Alaska. Up to 50 percent of this development could be in farm woodlots. The need to incorporate data on weather, crops, forest condition, trees, pests, shrubs, and livestock into an integrated pest management plan is self-evident. It will be necessary to identify the biological control agents acting against forest pests in these areas.

Alternative approaches to insect and disease management vary in effectiveness, cost, and environmental safety. The least expensive approach in the long run may be to anticipate potential problems and attempt to forestall them through silvicultural manipulations and the use of biological controls. This approach will reduce, but may not completely eliminate, the need for expensive direct suppression measures, such as pesticide application.

The integrated pest management approach evaluates all aspects of a pest-host system, providing resources managers with information about the effect of unregulated pest populations on various resource values, alternative regulatory tactics and strategies, and benefit-cost estimates for these alternative strategies. Regulatory strategies, are based on sound silvicultural practices and the ecology of the pest-host system. They consist of a combination of tactics, such as stand improvement and the use of pesticides. The overriding principle in the choice of strategy is that it should be ecologically compatible or acceptable. Until more is known about pest-host systems, pesticide use will be a major consideration for a wide variety of pest problems.

The Forest Service assists in the selection of pesticides to ensure effectiveness against target organisms and to ensure the relative safety of nontarget species. The need to conduct pesticide trials for a variety of pests will be evident in forestry on private, State, and Federal lands.

Assumption

Until more is known of pest-host systems, pesticide use will be a major consideration for a wide variety of pest problems. As Forest management intensifies, there will be increased concern about damage and losses because of insects and diseases.

Protection

Current Situation

A significant task facing Forest Managers is that of protecting the public from danger and public property from willful damage. Not only must the land and its resources be protected from careless abuses by forest users,

but most visitors to the National Forests look to the Forest Service to provide protection from a variety of dangers. These involve direct measures, such as providing campgrounds and cabins for shelter, firewood, and other amenities, and taking action to reduce conflicts between bears and humans. The public also expects the Forest Service to provide information and warnings regarding the risks and dangers involved with different recreational experiences. In addition, in many communities the Forest Service is viewed as being knowledgeable about, and capable of, rescue operations during emergencies.

The Forest Service expects forest users and visitors to provide for their own welfare and safety outside of developed areas of the forests. Because of the vastness and remoteness of many of the forests, accurate statistical information is not available on the number of user and visitor accidents.

Incidents of crime, especially theft, trespass, and vandalism, are increasing rapidly, although detailed statistical information is not compiled for the Region at this time. Losses to the government run into the tens of thousands of dollars annually. Until recently, law enforcement activities were handled by the Alaska State Troopers under cooperative agreements; they still play an important role in enforcement activities and are the primary source of enforcement of State laws. Today, however, Federal laws on National Forest System lands are also being enforced by trained Forest Service law enforcement personnel. Programs of public information and education are being used to inform forest users of the potential hazards and dangers and to attempt to reduce acts of vandalism, especially unintentional damage to sensitive resources.

The Alaska State Troopers and the U.S. Coast Guard have legal responsibilities for search and rescue operations. Forest Service personnel often assist at the request of the responsible agencies, because they are often more familiar with many of the remote areas of Southeast and Southcentral Alaska. In emergency situations, where there is imminent threat to life or property, Forest Service personnel and resources are available to provide whatever action is necessary.

The State of Alaska is assuming wildland fire control responsibility from the U.S. Bureau of Land Management in most of Southcentral and Interior Alaska, where resource and property losses can easily happen. By 1985, the State will be protecting 75 million acres of land from damage by wildfire. This means being able to effectively combat 300 to 600 fire starts annually, many of them in remote and inaccessible country, requiring air transportation and highly trained air support personnel. With assistance from the Forest Service in the form of technology transfer and financing, the State will be able to plan and implement their fire management responsibilities in an efficient manner. This will reduce natural resource losses to a minimum and, at the same time, protect Alaska residents and visitors.

Although the risk of wildfire is currently minimal in Southeast Alaska because of the moist maritime climate, hazards and risks are expected to become greater as uses increase on these forested lands. Consequently, fire management considerations should be duly addressed in management plans for the National Forests adjacent to State and private lands.

In addition to the protection of rural lands and resources, the Forest Service and the State Forester assist rural communities with the protection of lives and homes. Fire mortality rates for the State of Alaska are more than twice the national average. Fire mortality rates for Alaska Native people residing in rural villages are about four times the national average. Alaska's per capita fire damage loss is more than $100 per year, compared to a national average of less than $20.

The State of Alaska has snow avalanche hazards and conditions that resulted in the highest number of snow avalanche fatalities in the Nation during the 1970's. In addition, the potential for extreme property damage is critical throughout the winter months. In August, 1979, the Forest Service entered into a cooperative work agreement with eight other State, municipal, and Federal agencies to develop and implement a statewide snow avalanche warning system, located in Anchorage. The system also includes a summer fire weather forecasting service, thus providing year-long operation of a combined avalanche-fire weather forecast system.

Because of its experience and expertise in this specialized activity, the Forest Service plays an important role in the operation and administration of the system. During 1980, a State law was enacted that requires the State to participate in development and implementation of the statewide avalanche warning system and related avalanche control activities. The State Departments of Public Safety, Transportation and Public Facilities, and Natural Resources are involved. A 5-year plan of development is aimed toward a full-scope operation for the winter of 1984-85, at which time the State is expected to have the lead responsibility for management.

Assumptions

1. As public use of the National Forests increases, so will the number of use-related accidents.

2. Forest users expect a reasonable level of protection for themselves and their property, while engaged in activities on National Forest System lands.

3. Without corrective action, acts of violence and vandalism can be expected to increase with growing public use.

4. The public will continue to look upon the Forest Service as having the knowledge and expertise to cope with emergency situations arising on or adjacent to Forest Service land.

5. Failure to provide financial and technical assistance to the State for rural fire prevention and control will increase loss of lives, homes, and natural resources as the State prepares to protect rural lands previously under the protection of the Federal Government.

6. The State Department of Public Safety will program necessary budget requests to enable continued development and operation of the Alaska Avalanche Warning System. By 1985, the State is expected to finance approximately two-thirds of the total cooperative venture, which benefits a number of State, Federal, and municipal agencies.

Chapter 3
MANAGEMENT DIRECTION

OVERVIEW

This chapter describes Regional goals and objectives, standards and guidelines, planning guidance, and monitoring and evaluation requirements. Regional goals and objectives include the Region's planning targets and Regional goals for each resource element.

Standards and guidelines are policies derived from the Southeast Alaska Area Guide that are intended for long-term, consistent regionwide application. They represent management direction responsive to the Regional issues and concerns that received thorough analysis in the accompanying EIS. The standards and guidelines are organized by resource element consistent with the structure of the Area Guide. For a complete display of the Area Guide policies and a description of the inclusion or exclusion process for management direction in this Regional Guide, see Appendix B of the EIS.

The planning guidance section of this chapter is management direction to the Tongass and Chugach National Forests. This section displays both tentative shares of the 1980 RPA targets for each Administrative Unit and process requirements to be followed when developing Forest Plans. The tentative shares of the RPA targets are not intended to limit Forest Plan alternatives, but rather to establish a reference point in the analysis of the Forest management situation, so that continuity is maintained with the findings and direction of RPA.

REGIONAL GOALS AND OBJECTIVES

The RPA Recommended Program provides overall national goals and targets for the Forest Service. Within the framework of the RPA Recommended Program, Regional goals and objectives have been developed for the Alaska Region to guide land and resource management and are displayed in this chapter. State and Private Forestry and research programs and objectives are described in Chapters 4 and 5, respectively.

Regional Objectives

The Alaska Region's share of the 1980 National RPA Program outputs, activities, and estimated costs is displayed in Table 3-1. These targets and, most importantly, the trends over time reflect the Nation's resource

Table 3-1

1980 RPA Planning Targets, Activities, and Costs for the Alaska Region

Program Element and Activity	Unit of Measure	Annual Targets								
		1982	1983	1984	1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
Recreation										
Developed Rec. Use (incl. VIS)	Thousand RVD's	1,300	1,700	1,900	2,200	2,500	2,600	2,800	3,500	4,200
Dispersed Rec. Use (incl. wildlife and fish)	Thousand RVD's	4,300	4,600	4,800	5,000	6,000	8,100	9,000	9,500	10,000
Trail Const./Reconst.	Miles	27	28	28	29	30	31	32	33	34
Wilderness										
Wilderness Management[1]	Thousand Acres	5,361.9	5,361.9	5,361.9	5,361.9	5,361.9	5,361.9	5,361.9	5,361.9	5,361.9
Wildlife and Fish										
Wildlife Habitat Improvement	M Acre Equiv.	6	6	6	6	6	5	4	2	2
Anadromous Fish Improvement	Thousand Pounds	210	521	1,376	2,134	7,390	15,166	20,234	20,234	20,234
Timber										
Programmed Timber Sales Offered[2]	Million Board Feet	475	466	460	460	460	460	460	460	460
Reforestation	Acres	2,150	2,170	2,170	2,170	2,144	2,100	2,100	2,100	2,100
Timber Stand Improvement[3]	Acres	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000
Water										
Meeting Water Quality Goals	MM Acre-Feet	189	189	189	189	189	189	189	189	189
Minerals										
Mineral Leases and Permits	Operating Plans	190	205	225	245	255	275	320	335	350
Human and Community Development										
Human Resources Programs[4]	Enrollee Years	391	391	391	391	34	34	34	34	34
Fire Management Effectiveness Index	Dollars per M Acres	18	19	19	19	19	19	19	18	18
Soil and Water Resource Improvement (Imp. Watershed Condition)	Acres	425	530	535	538	542	544	546	548	550
Road Const. and Reconst.[5]	Miles	10	11	2	8	6	6	2	2	2
Costs										
Operational[6]	MM Dollars	20.1	20.1	20.1	22.3	29.8	33.0	34.2	35.5	36.1
Capital Investments	MM Dollars	72.2	75.1	74.1	72.5	60.5	58.5	53.9	52.4	48.7
Backlog	MM Dollars	1.1	1.1	1.1	1.1	0.4	0.1	0	0	0
Approp. Total[7]	MM Dollars	92.3	95.2	94.2	94.8	90.3	91.5	88.1	87.9	84.8
Allocated	MM Dollars	8.3	8.3	8.3	8.3	0	0	0	0	0
TOTAL Region[8]	MM Dollars	100.6	103.5	102.5	103.1	90.3	91.5	88.1	87.9	84.8

[1]Acres shown reflect congressional designation of wilderness to the Tongass National Forest. Additional wilderness is under consideration on the Chugach National Forest.

[2]Volumes sold will be carefully monitored. Adjustments to the volume prepared and offered from the Tongass National Forest will be made as needed to ensure that the supply to dependent industry does not drop below the decade average of 4.5 billion board feet, as required by the Alaska Lands Act.

[3]Timber Stand Improvement includes precommercial thinning and 1,300 to 1,600 acres of other timber stand improvement.

[4]Human Resources Programs, whose funds are allocated to the Forest Service, are not included in figures beyond 1985.

[5]Miles of road constructed by public works contract. Does not include 10 to 20 miles of road per year financed by Tongass Timber Supply Fund. Timber purchaser road construction mileage is not included.

[6]All costs and returns are shown in constant 1978 dollars.

[7]National Forest System appropriated funds include all Youth Conservation Corps and Cooperator Funds.

[8]National Forest System allocated costs include the Young Adult Conservation Corps and other human resources programs, the Land and Water Conservation Fund, and other funds. Costs exclude payments to the State and boroughs and Federal highway funds.

management priorities as determined in 1980 by Congress and the Administration (with extensive public participation). The Region is making every effort to meet these RPA targets. The rate of implementation is a function of the availability of annual appropriations, which are determined in relation to other national priorities.

Regional Resource Goals

Goals specific to the National Forest resources in the Alaska Region have been developed as an aid to policy implementation. These goals are organized by the series of resource elements identified in Chapter 2.

Human and Community Development Goals

1. Secure an optimum allocation of National Forest resources to satisfy national, Regional, and local needs.

2. Manage the Tongass and Chugach National Forests to integrate both the lifestyle options and the well-being of Alaska residents and communities with national goals and concerns.

3. Assist communities and residents of Alaska in meeting their diverse land and resource use needs.

4. Obtain a more thorough and comprehensive socioeconomic profile at the Regional and local community levels.

5. Expand opportunities on National Forest System lands to use available youth programs and to provide greater opportunities for employment involving more Alaskans.

6. Develop programs for involvement of diverse citizen's groups in National Forest activities, including volunteers to the National Forests and manpower and employment programs.

Soil Goals

1. Manage the soil resource to minimize erosion and protect soil productivity.

2. Rehabilitate disturbed and eroded soils to restore productivity and reduce erosion.

Water Goals

1. Maintain water quality in accordance with need and in conformance with all applicable legislation, such as the Clean Water Act, Safe Drinking Water Act, and all substantive and procedural State and Federal requirements.

2. Restore the chemical, physical, and biological characteristics of degraded waters to conform with goals of Forest Plans and State water-quality standards.

Air Goals

1. Maintain air quality within established national and State standards.

Fish and Wildlife Goals

1. Maintain and enhance the capability of National Forest System lands and water to efficiently produce and sustain the wildlife and fish populations, species diversity, and distribution mutually desired by the Forest Service and the Alaska Department of Fish and Game in response to public demand.

2. Provide opportunities for the public to use and enjoy the wildlife and fisheries resources present on National Forest System lands.

3. Maintain and improve coordination and communication with all agencies, organizations, and institutions that have responsibilities or interest in management of wildlife and fisheries resources in the Region.

4. Continue to strengthen the Fisheries Habitat Program in Alaska.

5. Develop and implement a Wildlife Habitat Relationship Program and a Fisheries Habitat Relationship Program in Alaska.

6. Encourage wildlife and fisheries research that focuses on identifying and resolving conflicts with other resource management programs, delineates impacts, if any, and provides opportunity to enhance populations and habitat.

7. Improve the status of threatened and endangered fish, wildlife, and plant species to a point where they no longer need the protection of listing in the Federal Register under the Endangered Species Act.

Estuaries and Tidal Meadows Goals

1. Meet the management goal for fish and fish habitat and for wildlife and wildlife habitat set forth in the Regional Guide, Southeast Alaska Area Guide, and Tongass Forest Plan.

2. Meet or exceed Federal and State water-quality standards.

3. Protect aesthetic quality and recreational uses.

Timber Goals

1. Provide for the orderly development of forest wood products on commercial forest land in a manner consistent with demand, land capability, and protection of other resources and in accordance with the RPA Program through planned sales, salvage, reforestation and stand improvement, and increased utilization.

2. Maintain the timber supply from the Tongass National Forest to dependent industry at a rate of 4.5 billion board feet per decade. Monitor the timber supply and demand in Southeast Alaska and prepare annual reports to Congress.

3. Modify existing National Forest timber sale contracts related to lands designated by the Alaska Lands Act as wilderness, as follows: for timber within wilderness units, substitute, to the extent practicable, timber on other National Forest System lands that is approximately equal in volume, species, grade, and accessibility.

4. Define the eligibility of purchasers of National Forest materials in Alaska so that those purchasers may obtain loans for acquisition of equipment or implementation of new technology that could lead to the use of wood products that might not otherwise be utilized.

5. Study timber demand and opportunities to increase timber yields on National Forest System lands in Alaska.

6. Assist private, State, and local government interests to develop a viable forest-based economy in Alaska that provides a wide range of employment opportunities for local residents.

7. Encourage and assist private, State, and local government interests in efficient long-term use and improvement of their lands and renewable resources in a manner consistent with the principles of sustained yield and multiple use.

Minerals Goals

1. Integrate the exploration, development, and extraction of mineral and energy resources into Forest management at all appropriate planning levels to facilitate efficient development and ensure protection of all other resource values.

2. Meet demands of the private and public sector for sand, gravel, and rock in a manner consistent with all policies governing management of Forest resources.

3. Encourage private enterprise in the orderly economic development of domestic mineral resources; satisfy national security requirements and industrial and environmental needs as directed by laws and regulations applicable to the National Forests.

4. Minimize environmental impacts of mineral development.

5. Encourage and give priority to those proposals that relate to the development of energy and strategic/critical minerals.

Recreation Goals

1. Increase the supply of outdoor recreation opportunities and services through programs that emphasize dispersed recreation.

2. Encourage development of available private land for provision of resorts, marinas, campgrounds, and other commercial public services.

3. Give priority to recreation facilities that encourage energy and economic efficiency by making National Forest recreation sites more accessible to communities or service centers, or promote sites that are served by public transportation.

4. Increase fee collections for campgrounds, cabins, and other special accommodations or services to reduce competition with the private sector and to recover more of the operation and maintenance costs.

5. Promote Forest Service cooperation with Federal, State, local, and private entities to avoid duplication of effort; ensure that National Forest recreation opportunities complement recreation opportunities on State and private lands.

6. Provide visitor orientation on the safe use of National Forests, emphasizing energy conservation and environmental quality.

Wilderness Goals

1. Implement wilderness management in a cost-effective manner that minimizes impacts on users of the land, with special consideration for rural residents living a subsistence lifestyle.

2. Maintain an enduring system of high-quality wilderness.

3. Complete the administrative recommendation process on wilderness allocations on the Chugach National Forest through the Forest land management planning process.

Cultural Resources Goals

1. Inventory and evaluate cultural resources for eligibility on the National Register of Historic Places within the 1995 deadline.

2. Manage cultural resources as a nonrenewable national heritage for the public benefit, in a manner sensitive to concerns of Native American groups and other affected groups.

Transportation Goals

1. Develop a system of transportation that is most cost effective in meeting land and resource management goals and the needs of the people.

2. Develop natural transportation corridors in a manner that effectively meets international, national, and Regional transportation needs, while protecting other resource values and land-use opportunities.

Facilities Goals

1. Develop administrative facilities to minimize the risk to personnel of health and safety hazards and to support cost-efficient management of the National Forests.

Lands Goals

1. Allow uses and occupancies compatible with Forest Service policy through special-use permits, easements, Memoranda of Understanding, and cooperative management agreements consistent with laws, regulations, and policies for land uses compatible with the long-term public interest.

2. Place high priority on processing State and Native land selections.

3. Assure that public access to National Forest System lands is provided for in all land conveyances.

4. Identify and plan on a priority basis for surveying, marking, and posting of National Forest and private land boundaries.

Protection Goals

1. Provide for the safety and welfare of Forest visitors.

2. Encourage public compliance with rules and regulations through public information and education programs, cooperative agreements with local law enforcement agencies, and Forest Service law enforcement.

3. Protect Federal property and resources under Forest Service stewardship from acts of misuse, public disturbance, violence, and vandalism.

Forest Pest Management Goals

1. Reduce pest incidence to levels consistent with threatened resource values, while adequately protecting nontarget organisms from adverse effects.

REGIONAL STANDARDS AND GUIDELINES

This section contains standards and guidelines for Forest Service activities in Alaska. The policy sections of the Southeast Alaska Area Guide of 1977 served as the model. The discussion is organized by the following elements: human and community development, soil, air, water, fish, wildlife, estuaries and tidal meadows, timber, minerals and geology, recreation, wilderness, cultural resources, transportation, lands, forest pest management, and protection. The account structure of the Area Guide has been used, but the term account has been changed to element, and the names of some elements have been updated.

Refer to Appendix B of the EIS for cross reference and comparison of the Regional Guide policies with the Southeast Alaska Area Guide policies.

Human and Community Development

1. Cooperatively develop a comprehensive community and Regional socioeconomic profile for each administrative area on the Tongass and Chugach National Forests. Use the available resources of the Forest Service, State of Alaska, private consultants, colleges, and universities.

2. Forest Service activities will be coordinated with local communities in the following manner:

   a) The plans and concerns of local communities, as represented by their governing bodies and the public involvement process, will be incorporated in alternatives developed at all Forest Service planning levels.

   b) Preferences of a community will represent an integral factor in Forest Service decisions where communities and residents may be significantly affected.

   c) Alternatives developed during the planning process must reflect community needs and preferences as expressed through the public involvement process prior to starting the environmental impact statement procedure. Examples of community needs might include areas required for recreation or subsistence activities, aesthetic quality, lifestyle options, transportation system options, and community growth goals.

3. The Forest Service recognizes the State of Alaska as having the primary leadership role in setting policy governing the establishment of temporary or permanent communities.

4. The Forest Service will promote research to quantify nonconsumptive and amenity uses so that these values can be more easily equated with those uses already having quantifiable values.

5. Provide opportunities, such as an independent timber sale program geared to small operators, for the development or utilization of Forest resources by small entrepreneurs, as well as by large companies or corporations.

6. Work with citizen groups, service organizations, and local and State of Alaska governments to initiate needed employment and manpower programs.

7. Through the Forest Service's State and Private Forestry programs, work with the State agencies and private land owners to encourage forest industries, including tourism, outdoor recreation, timber, and other opportunities that will contribute to economic development and stability.

8. Work cooperatively with State agencies and private organizations in carrying out the subsistence provisions in the Alaska Lands Act. The State of Alaska has the lead role in determining viable subsistence, sport, and commercial use levels for fish and game populations.

9. Use economic efficiency as one of the standards for evaluating alternatives in environmental analyses where significant changes in costs and/or outputs are considered.

10. Identify and display economic and social impacts of programs and management alternatives in environmental analyses where significant changes in outputs between alternatives are considered. Give particular emphasis to industries that are dependent on National Forest System program outputs, such as timber, fisheries, and tourism.

11. A well-designed, well-executed public involvement program is important in identifying public preferences and social values. Develop and implement comprehensive public involvement activities during major Forest Service planning efforts. Include a systematic analysis process that is based on established professional principles.

Soil

1. Continue a soil monitoring program on the Forests to measure soil behavior and response under various conditions. This program will provide a scientific means to evaluate losses of nutrients and/or soil material as a result of land management activities.

2. Conduct a soil resource inventory and prepare a report for all projects significantly affecting soil resources.

3. Management activity on braided stream bottomlands will be preceded by interdisciplinary team (IDT) evaluation. Timber will not be cut unless natural or artificial regeneration can be ensured within 5 years of harvest; and fish, water, and soil resources can be adequately protected. The adequacy of protection will be determined through the IDT process.

4. Tractor logging will be permitted only on soils where natural or artificial regeneration can occur within 5 years with no impairment of soil productivity and where fish and water resources can be protected.

5. Incorporate provisions for revegetating and stabilizing temporary roads, landings, borrow pits, skid trails, and other human-caused soil disturbances into project plans. Where revegetation measures are required, seed or plant the first growing season following disturbance or cessation of use. Drain borrow and rock pits no longer needed, unless developed for fish or waterfowl. Revegetate mineral soils using the most appropriate means. Rehabilitate areas already disturbed or not covered by contract on a priority basis as watershed rehabilitation money becomes available. Highly erodable

terrain directly affecting fish and water resources is the highest priority for scheduling rehabilitation projects.

6. Forest Supervisors must approve logging or road building on slopes greater than 75 percent. Prescriptions will be prepared to reduce the possibility of soil failure on slopes between 35 and 75 percent if a risk of failure exists.

7. Design crossings of drainages to prevent debris jamming.

8. Locate rock quarries and borrow pits and time their use to minimize the impacts upon other resource values.

9. Conduct development activities on organic soils and mineral soils classified as wetlands in compliance with existing executive orders.

Air

Smoke management will be coordinated with the Alaska Department of Environmental Conservation to assure that air-quality increments are not exceeded. Local sources of emission will be evaluated to assure that airshed integrity is maintained.

Water

1. Maintain a long-term monitoring program on representative watersheds to assess land management impacts on water quality and stream site productivity.

2. Maintain a long-term monitoring program on representative log transfer and terminal transportation facilities to assess the effects on water quality and marine habitat.

3. Cooperate and participate with the State of Alaska through the 208 Cooperative Water Quality Cooperative Agreement to identify and monitor new nonpoint water pollution sources and to enforce water quality standards.

4. Use water resource inventories and reports to evaluate potential impacts of land management activities. Identify sensitive landforms where nonpoint source pollution problems are likely to occur and evaluate probable impacts of management alternatives.

5. Manage floodplains to avoid adverse impacts associated with occupancy and modification and in compliance with executive orders.

Fish

1. Fully coordinate Forest Service activities with other agencies involved with the fishery resource.

2. Solve mutual problems and achieve common goals and objectives through the Master Memorandum of Understanding between the Forest Service and State and Federal Agencies and aquaculture associations.

3. The Forest Service recognizes fishery resources as a major component of the National Forests and the source of numerous important products, benefits, and services. Fishery resources are to be considered no more or no less important than the other renewable resources of the National Forests.

4. The Forest Service designates any lake or stream on National Forest System land that supports anadromous or resident fish as fish habitat. This includes, but is not limited to, all streams designated by the Alaska Department of Fish and Game as salmon streams and potential habitat that could be used as a result of enhancement programs. The Forest Service recognizes that the entire watershed, including trees, shrubs, and grasses, and particularly streamside and lakeside vegetation, is an integral component of the total ecosystem and should be managed as such.

5. Complete a prescriptive plan for proposals for all land-use activities:

   a) The Fish Habitat Management Unit (FHMU) includes all components of the fish habitat as identified through the interdisciplinary process. The FHMU is that portion of land including the stream channel and the streambanks defined for the protection of stream habitat and maintenance of stream productivity. Give special consideration to that area at least 100 feet on either side of the stream.

      Within the FHMU, timber management practices and other land-use activities are prescribed to meet the management goals for fish habitat.

   b) Identify temperature-sensitive streams, recognizing State water-quality standards pertaining to fish habitat. Such streams require special prescriptions for management of the shade-producing streamside overstory (trees, shrubs, grasses). The amount of overstory that can be removed is determined by reference to guidelines in The Temperature Sensitive Stream, 1977, until revised.

6. Coordinate with State and Federal agencies in maintaining a continuous program for detailed research, monitoring, and assessment of the impacts of land-use activities on fish habitat. Conduct monitoring programs to determine the implementation effects of Forest Plan standards and guidelines on fish habitat.

7. Certain species shall be selected as indicators of the effects of management.

   Describe in Forest Plans the anticipated effect on the fisheries resource; the species selected for monitoring purposes; the reasons for selecting the species; the monitoring schedule; and the expected precision and accuracy of the monitoring process.

Use the following criteria to select species as indicators of the effects of management, keeping in mind the need to restrict species to a practicable number:

a) Threatened or endangered species on Federal lists;

b) Species identified in State lists of endangered or threatened species;

c) Species for which the planning area comprises a majority of the species' total statewide, Regional, or national habitat;

d) Species which represent or reflect environmental suitability for other species;

e) Species having significant economic value. Normally these species are those commonly fished for sport or commercial use.

Aquaculture

1. Permit applications for aquaculture sites will first be received by the Alaska Department of Fish and Game.

2. The Forest Service will consider, in cooperation with the Alaska Department of Fish and Game and the Regional Aquaculture Associations, land suitable for aquaculture sites. Site availability will depend on the results of land management planning and environmental assessment to determine compatibility of such sites with other resource and value priorities. Any further site selections or additional criteria will be identified in Forest Plans.

3. Conduct aquaculture activities on the Forests under the Memoranda of Understanding supplemental to the three-way Memorandum of Understanding between the Forest Service, the Alaska Department of Fish and Game, and the Regional Aquaculture Association.

Wildlife

1. Fully coordinate with other agencies involved with the wildlife resource.

2. Solve mutual problems and achieve common goals through the Master Memorandum of Understanding between the Forest Service and the Alaska Department of Fish and Game.

3. The Forest Service recognizes wildlife resources as a major component of the National Forests and the source of numerous important products, benefits, and services. Wildlife habitat resources are to be considered no more or no less important than the other renewable resources of the National Forests.

4. Coordinate wildlife habitat surveys, studies, plans, and improvement projects with the Alaska Department of Fish and Game. Use the authorities for cooperative work provided under the Sikes Act.

5. Desirable levels of wildlife will be determined primarily by the Alaska Department of Fish and Game, and wildlife habitat will be determined primarily by the Forest Service, using factors such as land capability, other resource values, demand, relative abundance, competition with other species, and coordination with other resources and needs. Forest Plans will state wildlife objectives in terms of animal population trends and in terms of amount and quality of habitat needed to meet objectives.

6. Emphasize management for indigenous wildlife species and natural habitat over other wildlife management approaches, except in cases where the Forest Service and the Alaska Department of Fish and Game agree upon other alternatives. Give special consideration to the habitat of sensitive, threatened, and endangered species of plants, animals, and fish. Provide, as needed, for the identification, habitat management, and protection of these species.

7. Implement policies through the interdisciplinary process:

   a) Recognize the capabilities and sensitivities of important wildlife habitat areas in land management planning.

   b) The Forest Service recognizes that, for many wildlife species, information on the impacts of land-use activities on habitat and on factors determining the suitability of habitat for wildlife are incomplete. Identify these species jointly with the Alaska Department of Fish and Game.

   c) Provide the habitat management standards necessary to ensure that viable population levels of all existing native vertebrate species of wildlife and fish on the Forest are maintained over time, despite normal fluctuations in population numbers.

   d) Habitat management standards for selected species are, as appropriate, aimed at supporting populations above the viable population level.

   e) The Forest Service recognizes the possibility that alteration of wildlife habitat through a series of projects over an entire range of a species may result in cumulative impacts.

8. The national significance of the bald eagle dictates that its habitat will continue to be given special protection through specific Forest Service management measures developed in conjunction with the U.S. Fish and Wildlife Service. These include:

   a) Maintaining the desired quality and quantity of eagle habitat, nest trees, and perch trees;

   b) Assisting the U.S. Fish and Wildlife Service in conducting surveys and studies;

   c) Establishing an undisturbed wildlife habitat zone of 100 meters (330 feet) or more in radius around each eagle nest tree prior

to any Forest development activity in the vicinity. Local topography, timber type, windfirmness, and other factors will determine the exact boundaries.

9. Certain species shall be selected as indicators of the effects of management.

   Describe in Forest Plans the anticipated effect on the wildlife resource; the species selected for management and monitoring purposes; the reasons for selecting the species; the monitoring schedule; and the expected precision and accuracy of the monitoring process.

   Utilize the following criteria to select species as indicators of the effects of management, keeping in mind the need to restrict species to a practicable number:

   a) Threatened or endangered species on Federal lists;

   b) Species identified in State lists of endangered or threatened species;

   c) Species for which the planning area comprises a majority of the species total statewide, Regional, or national habitat;

   d) Species that represent or reflect environmental suitability for other species (true ecological indicators);

   e) Species having significant economic value. Normally, these species are those commonly hunted, or trapped and those for which there is a relatively high demand (consumptive and non-consumptive).

   Forest Plans shall provide for diversity of plant and animal communities and tree species consistent with the overall multiple-use objectives of the planning area.

Estuaries and Tidal Meadows

1. Coordinate the planning and decisionmaking process with the Alaska Department of Fish and Game, the National Marine Fisheries Service, and the U.S. Fish and Wildlife Service. In areas where agencies have overlapping resource management responsibilities, seek guidance and direction, and execute plans and decisions in a manner consistent with the statutory responsibilities of these agencies.

2. Recognize the ecological role of intertidal and marine areas in supporting fish, shellfish, and wildlife populations in management decisions affecting habitat.

3. Prepare an interdisciplinary plan for all proposals for use (e.g., mining, logging, aquaculture, hydroelectric projects, and developed recreation facilities). In the plan, specify (1) appropriate

Estuary Management Units (EMU's), and (2) formulation of prescriptions. (This does not include activities that are minor, lacking in measurable impact, and of insufficient impact to cause objection by any Forest Service constituency.)

An EMU includes components of an estuary and adjacent areas determined to be necessary for implementing management prescriptions. An EMU will not exclude management activities consistent with the goals for estuaries.

4. Phase out the use of existing log storage and terminal transportation facilities not complying with these policies. Coordinate termination of site use with alternative sites.

5. Where a nonconforming site and/or facility is considered for use during a subsequent contract or 5-year operation period, use an interdisciplinary process to determine whether adverse impacts of relocating the nonconforming site exceed those resulting from continued use of the existing site.

Timber

Appropriate Harvest Cutting Methods

Even-aged harvest cutting methods are prescribed for all species, except where uneven-aged management is needed to meet other resource objectives. Clearcutting to regenerate an even-aged stand will be used as a cutting method only where such a practice is determined to be optimum to meet the objectives and requirements of the Forest Plan and can be carried out in a manner consistent with the interdisciplinary process for the protection of soil, water, wildlife and fish, recreation, visual resources, and the regeneration of the timber resource.

Management prescriptions will not be chosen primarily because they will yield the greatest dollar return or the greatest amount of timber, although these factors will be considered.

Clearcutting and other cuts designed to regenerate an even-aged stand of timber will be used as a cutting method only where cutting units are located so timber stands can be logged without creating islands of timber that cannot be economically harvested in the future, or without creating areas where future logging will destroy regeneration established following an earlier regeneration cutting.

Special attention will be given to logging practices that encourage diversity of wildlife habitat; for example, small clearcuts and other silvicultural techniques may be used to increase browse production in key winter habitat.

1. Even-Aged Management.

   a) Clearcutting--This system can be applied to all timber types in the Region.

Where considered optimal, clearcutting must generally be applied where trees are cut to achieve timber production objectives established in Forest Plans, where there is a risk of dwarf mistletoe reinfection, and where risk of windthrow is determined to be high.

Clearcutting may be applied where longer rotations are established to meet other resource objectives, on unregulated components of commercial forest land, and where wood is harvested for energy from lands classified as unsuitable for timber products.

b) Shelterwood--This system may be applied to all timber types in the Region.

It may be applied where the interdisciplinary process determines the system will be appropriate to meet the objectives and requirements of Forest Plans, including the protection of excessively steep or unstable soils, visual resources, wildlife and fish, and for specialty products.

It may be used for harvesting wood for energy purposes from lands classified as unsuitable for timber production. However, it should be used only where recurring salvage operations can be conducted.

Use of the system should be limited to harvest areas that can employ yarding equipment suited to use in partial cuts (Timber Sale Preparation Handbook, FSH 2409.24, R-10).

c) Seed Tree Cutting--This method may be applied anywhere that does not have an adequate seed source in surrounding stands.

2. Uneven-Aged Management--Individual tree and group selection can be applied in all timber types in the following areas:

a) "Unregulated" timber stands

b) Unstable soils or steep slopes

c) "Special" components of regulated stands where Forest Plans establish criteria or conditions for uneven-aged management

d) Salvage

e) Where wood for energy is harvested from lands classed as unsuitable for timber harvest

f) These systems must be limited to harvest areas that can employ yarding equipment suited to use in partial cuts (Timber Sale Preparation Handbook, FSH 2409.24, R-10).

(These regeneration cutting methods are discussed further in the EIS, Appendix D.)

The standards for forest types in the Alaska Region are listed below:

1. Standards for White Spruce Forest Type--White spruce is the principal species in two western forest types. Principal types are white spruce and white spruce-birch. Minor types are white spruce-poplar-birch and white spruce-aspen. Major considerations in achieving regeneration are seed supply and exposed mineral soil.

   Even-aged management will be used where the management objective is to produce wood fiber.

   Uneven-aged management practices are generally not appropriate, but may be used on those sites where windthrow is not anticipated and management objectives place other uses above fiber production.

   Commercial thinning should be considered where opportunities exist and mixed stands may be improved by removal of hardwoods. In all cases, selection of the appropriate harvest cutting method and prescription of the associated treatments will reflect consideration of relevant criteria or factors within the following categories:

   a) Abiotic--site factors that will remain constant over time, e.g., soil, slope, aspect, elevation, plant community, climate, and landform

   b) Biologic--stand condition, successional trends, protection, regeneration capability, and suitability of present genetic material

   c) Economic--species value, market factors, quality, logging systems, volume per acre, and regeneration costs and difficulties

   d) Management Objectives--species, visual, land-use allocations, other resource objectives, and impacts or implications

   In addition to the standards above--and to the specific considerations governing the application of standards in the selection of appropriate harvest cutting methods, establishment of maximum size, dispersal, and size variation of openings, etc., set forth in 36 CFR 219.27--consideration will be given to the following conditions peculiar to this forest type.

   a) Big-game forage and cover requirements

   b) Endemic and epidemic insect attacks

   c) Solar radiation

   d) Need for site preparation or planting

   Supplementary guidance and technological support for selection of appropriate silvicultural and for associated prescriptions are found in Silvicultural Systems for the Major Forest Types of the

United States, Agricultural Handbook No. 445; Silvics of Forest Trees of the United States, Agricultural Handbook No. 271; and Regeneration of White Spruce, USDA Forest Service Research Paper PNW-79. The standards and guidelines here will be amended when subsequent research and experience demonstrate the need for amendment.

2. Standards for Western Hemlock-Sitka Spruce Forest Type and Associated Species and Mixtures--The hemlock-spruce type is composed of a number of conifer and hardwood species. These species have a range of tolerance to shade. There are also differences in seedbed requirements for natural regeneration, with some species requiring mineral soil or mixed organic and mineral soil to become established in significant numbers. Many soils within the range of this type are highly vulnerable to windthrow. Dwarf mistletoe is common on hemlock species on the Tongass National Forest.

   Even-aged management will be used where the management objective is to maintain fast growing, mistletoe-free stands of mixed species.

   Uneven-aged management practices are appropriate only on those sites where significant windthrow is not anticipated and the management goal does not include high timber yields of mixed species.

   The opportunities for commercial thinning this decade are extremely limited because of the small amount of timber in the age class that will respond to thinning. Commercial thinning will not be used in determining allowable sale quantities until it can be tested in coastal Alaska conditions. All harvesting done as commercial thinning will be monitored to determine the extent of blowdown, logging damage, and other effects.

   In all cases, selection of the appropriate harvest cutting methods and prescription of the associated treatments will reflect consideration of the relevant abiotic, biological, economic, and management objectives similar to those listed for white spruce.

   In addition to the standards above--and to the specific considerations governing the application of standards in the selection of appropriate harvest cutting methods, establishment of maximum size, dispersal, and size variation of openings, etc., set forth in 36 CFR 219.27--consideration will be given to the following conditions peculiar to this forest type.

   a) Solar radiation

   b) Disease populations

   c) Windthrow hazard

   Supplementary guidance and technological support for selection of appropriate harvest cutting methods and for associated prescriptions are found in Silvicultural Systems for the Major Forest Types

of the United States, Agricultural Handbook No. 445; and Silvics of Forest Trees of the United States, Agricultural Handbook No. 271. The standards and guidelines here will be amended when subsequent research and experience demonstrate the need for amendment.

3. Standards for Alaska Hardwoods Forest Type--These hardwoods are pioneer species, and the stands may be invaded by conifer species. Where the management objective is perpetuation of the type, even-aged management is the standard for selection of the appropriate harvest cutting method to be applied to that type. The intolerance of these species to shade and their susceptibility to several fungus diseases are controlling factors supporting even-aged management of these hardwoods.

   Uneven-aged management practices are appropriate only where the management objective is conversion to conifers. Manipulation of cutting practices, browsing intensity, and burning in various combinations may afford best management opportunities for special management situations.

   In all cases, selection of the appropriate harvest cutting methods and prescription of the associated treatments will reflect consideration of the relevant abiotic, biological, economic, and management objectives similar to those listed for white spruce.

   In addition to the standards above--and to the specific considerations governing the application of standards in the selection of appropriate harvest cutting methods, establishment of maximum size, dispersal, and size variation of openings, etc., set forth in 36 CFR 19.27--consideration will be given to the following conditions peculiar to this forest type.

   a) Wildlife forage and cover requirements

   b) Endemic insects and disease populations

   c) Need for site preparation

   Supplementary guidance and technological support for selection of appropriate harvest cutting methods and for associated prescriptions are found in Silvicultural Systems for the Major Forest Types of the United States, Agricultural Handbook No. 445; and Silvics of Forest Trees of the United States, Agricultural Handbook No. 271. The standards and guidelines here will be amended when subsequent research and experience demonstrate the need for amendment.

Maximum Size of Created Openings

NFMA regulations provide that 100 acres is the maximum size of created openings to be allowed for the hemlock-Sitka spruce forest type of coastal Alaska, unless excepted under specific conditions. The more pure stands of both species, the cedar type, the Chugach white spruce, and coastal hardwoods type will also be governed by the 100-acre limit.

Cedar and hardwoods are usually considered to be a component of the broad hemlock-Sitka spruce ecotype in Southeast Alaska. While the white spruce and interior hardwoods on the Chugach National Forest are now recognized as distinct forest types, their occurrence as a species is comparatively minor--0.1 and 0.3 percent net volume live saw timber, respectively. In addition, white spruce is extensively hybridized with Sitka spruce when both occur on the Kenai Peninsula.

Interior hardwoods are generally formed in association with white-black spruce and mountain hemlock stands, becoming established following stand openings created by fire, blowdown, insect or disease infestations or timber harvesting. They are, over time, succeeded by white spruce or other associated conifers.

Recognizing that harvest units must be designed to accomplish management goals, created openings may be larger where larger units will produce a more desirable contribution of benefits. Factors to be considered to determine when a larger size may be permitted are:

1. Topography
2. Relationship of units to other natural or artificial openings and proximity of units
3. Coordination and consistency with adjacent management areas
4. Effect on water quality and quantity
5. Visual absorption capacity
6. Effect on wildlife and fish habitat
7. Regeneration requirements for desirable tree species, based upon latest research
8. Transportation and harvesting system requirements
9. Natural and biological hazards to the survival of residual trees and surrounding stands
10. Relative total costs of preparation, logging, and administration of harvest cuts

Where it is determined by the interdisciplinary team that exceptions to the size limitation are warranted, the actual size limitation of openings may be up to 100 percent greater for factor 9 and up to 50 percent greater for all other factors with the approval of the Forest Supervisor. Forest Supervisors will identify the particular conditions under which the larger size is warranted and explain the benefits to be gained.

Exceptions to the 100-acre size limit in excess of 50 percent greater (100 percent greater for factor 9) are permitted on an individual timber sale basis after 60 days public notice, and review and approval by the Regional Forester.

The established limits and exceptions do not apply to the size of areas harvested as a result of natural catastrophic conditions, such as fire, insect and disease attack, or windstorm.

Dispersal and Size Variation of Tree Openings

When openings are created in the forest by the application of even-aged management, the openings will be shaped and blended with the natural terrain to achieve aesthetic quality and wildlife habitat objectives to the extent practicable. Openings will be located to achieve the desired combination of multiple objectives. Distribution of openings over time will conform to a total compartment multientry layout plan and will be scheduled, taking into consideration the assumptions used in the analytical allocation model. The multientry layout plan must consider all lands, including lands under other ownerships. Assumptions used for plan amendments or revisions should review activities already scheduled.

In developing multientry layout plans, steps 1 through 6 will be followed:

1. Identify and delineate nonforest and noncommercial forest.

2. Identify and delineate natural unregulated areas, such as V-notches, muskegs, and sensitive soils.

3. Identify and delineate unregulated areas based on management considerations, such as municipal watersheds, administrative sites, recreation areas, offshore islands less than 50 acres, and other considerations.

4. Identify and delineate areas required to meet sensitive wildife and fisheries habitat needs, such as bald eagle nest trees and perching and roosting areas; key winter habitats for black-tailed deer, moose, and mountain goats; key resting, cover, and feeding areas; and stream protection zones.

5. Identify and delineate areas of extended rotation to meet wildlife, visual, or other management objectives.

6. Harvest scheduling will not include lands that will be retained to meet the needs of other resources, unless the condition to be retained is time-specific.

Harvest-unit selection for each entry will consider:

1. Topography--Dispersion of openings will consider topography as it influences technological ability to harvest timber, layout locations to avoid blowdown, natural drainage patterns, and provisions for flexibility needed in landscape design.

2. Relationship to Other Openings--Areas adjacent or close to created openings should not be scheduled for entry until openings from an earlier harvest are no longer considered openings or otherwise meet

management prescription objectives. Uncut blocks of regulated commercial forest land must be retained in sizes and shapes that will constitute logical logging units.

3. Visual Quality--Reshaping or joining of existing openings may be necessary to accomplish visual and other resource quality objectives.

4. Wildlife and Fisheries Habitat--Wildlife and fisheries needs over time must be considered to maintain the habitat potential needed to ensure desired population levels.

5. Transportation System--Harvest will be dispersed to maximize the effectiveness of the proposed transportation system in meeting overall management prescriptions for the area planned.

Sale layouts must include a portion of marginal or low-volume timber stands if they are included within the boundaries of the sale area. (Yield calculations in the Tongass Land Management Plan are based on harvesting a portion of the marginal stand component in addition to a proportion of technologically marginal stands.)

State of Vegetation To Be Reached Before a Cutover Area Is No Longer Considered an Opening

Minimum stocking levels will be based on spacing, distribution, and stand management objectives, rather than the number of trees per acre, in accordance with regeneration stocking guides contained in Forest Service Handbook 2409.26d, Region 10, Silvicultural Examination and Prescription Handbook.

Created openings will be adequately stocked with desirable tree species, which are approximately 5 feet in height, on National Forests in coastal Alaska before the area will no longer be considered an opening for the purposes of limitations on scheduling, locations, and size of additional created openings on National Forest System land.

The basis for this determination will be the third-year silvicultural survey. (See Management Intensity.)

Forest Supervisors may adjust height and density requirements for specific resource management considerations, e.g., wildlife habitat and visual quality, to provide a state of vegetation that meets management prescription objectives.

Management Intensity

Implement new technologies leading to the increased utilization of wood products on Alaska National Forests.

Achieve opportunities to increase timber yields on National Forest System lands in Alaska. Continue management practices, such as planting, release, and weeding, as needed, and insect and disease control.

Maintain the timber supply from the Tongass National Forest to dependent industry at a rate of 4.5 billion board feet per decade to sustain employment levels.

Achieve RPA targets on the Tongass National Forest with investments in advanced roading, precommercial thinning, and advanced logging systems layout and development.

Maintain and enhance productivity of suitable forested land (all ownerships) to minimize inflationary impacts of wood product prices on the domestic economy and to contribute toward a net national export of forest products by the year 2030.

Achieve and maintain, where possible, the productivity of commercial timberlands at 90 percent of their potential level of growth, consistent with the provisions of NFMA.

Seeding or planting shall be used to reforest areas on which natural regeneration has not occurred or where accelerated regeneration is desired. Genetically improved seed trees will be used as they become available.

Examine all National Forest System lands treated after the first and third growing seasons. This requirement will be handled in the following way:

1. Examine artificial seeding or planting treatments 1 and 3 years after treatment.

2. No first-year surveys are required if the silvicultural prescription anticipates natural regeneration.

3. Stands will be certified as stocked if the third-year survey indicates that the area meets stocking standards.

4. Schedule another survey no later than seven growing seasons after harvest if the third-year survey indicates the area is very likely to be stocked, but more time is required to make this determination.

5. Prescribe artificial regeneration if the third-year survey indicates that natural regeneration is highly unlikely.

6. Conduct timber stand improvement project surveys as part of project inspections or within 1 year of completion. For most projects, no third-year examination will be completed.

Schedule artificial reforestation and timber stand improvement projects having benefits to other resources before those benefiting only one resource. For example, give priority to precommercial thinning in winter deer range and reforestation of areas having scenic value.

Forest fertilization may be used on soils determined to have insufficient nutrient status to allow the successful establishment of conifer cover within 5 years.

Management intensity also includes the selection, scheduling, and implementation of the following additional silvicultural practices:

1. Commercial Thinning--Commercial thinning, an intermediate step in even-aged management, is a removal of some trees from an immature stand, primarily to accelerate the growth of the remaining trees, but also, by suitable selection, to improve the average form of the trees that remain. It also can be used to increase forage for some species of wildlife. Opportunities for commercial thinning this decade are extremely limited because of the small amount of timber in the age class that will respond to thinning.

   Volumes from commercial thinning will not be used in determining allowable sale quantities in coastal forests, until the practicality of use in other than limited situations can be demonstrated in coastal Alaska conditions.

2. Salvage Cutting--Salvage cutting is the harvesting of individual dead or dying trees (trees not expected to live 20 years) wherever they may occur. Salvage may include trees damaged in road construction.

3. Prescribed Burning--Controlled application of fire to fuels under such conditions as weather, fuel moisture, and soil moisture to allow fire to be confined to a predetermined area and, at the same time, to produce the intensity of heat and rate of spread required to produce certain planned objectives of silviculture.

   This practice can be used for preparing sites for planting, for maintaining or improving wildife habitat, and for other resource needs. It may also be used for fuel management, when the wood residue cannot be used for other purposes. It will be used on a trial basis for reducing overstocking of advanced regeneration in harvested areas, following an approved administrative study plan.

4. Precommercial Thinning--A type of thinning that particularly favors the dominant or selected dominants more or less evenly distributed over the stand by removing a varying proportion of the other trees.

   This practice can be applied to all stands where appropriate to meet objectives of the Forest Plan.

5. Fertilization--Fertilization of forests is generally accomplished by applying mineral fertilizers to increase the level of nutrients that are deficient for maximum tree growth or seed production. Economic and silvicultural research, however, often has shown fertilization to have marginal economic returns in terms of increasing wood or seed crops. Forest fertilization may therefore be used on soils determined to have insufficient nutrients to allow the successful establishment of a conifer cover within the time constraints imposed.

6. Release of Conifers from Overtopping Vegetation--Freeing a tree or group of trees from more immediate competition by cutting or otherwise eliminating growth that is overtopping or closely surrounding it.

   To be applied as necessary to all commercial forest land used in calculating the allowable sale quantity or as needed for other resource management.

7. Site Preparation for Planting--A practice in which the canopy, ground cover, and soil are modified to render them suitable for planting trees for regenerating the site.

These practices can be applied as needed for resource management.

Utilization Standards

Require utilization and optimum practical use of wood material. Promote the use of wood for its highest value product commensurate with present and anticipated supply and demand. Improvements in utilization will be made through sale preparation, appraisals, contract administration, and dissemination of research information. Sale and utilization of dead, blown-down, and other deteriorating timber will receive high priority. Utilization standards are for harvest scheduling purposes. Actual sale contracts will continue to emphasize maximum feasible utilization standards.

The Forest Service will continue to grow and manage quality timber stands of sawtimber size, except from forest types and sites on which it is not practicable to produce continuous crops of sawtimber size or quality.

Minimum utilization standards will be reviewed periodically and adjusted according to current utilization trends, market conditions, and technological state-of-the-art.

Minimum sawlog merchantability standards for the Tongass and Chugach National Forests are displayed in Tables 3-2 and 3-3.

1. For stands classified as "regenerated" in timber harvest schedules, utilization standards are shown in Table 3-2.

Table 3-2

Utilization Standards for Regenerated Stands for All Forests

Species/Product	All sawlogs
Minimum d.b.h.	7 inches
Minimum Top Diameter (d.i.b.)	5 inches
Percent Sound Volume	25 percent

The volume of endemic mortality, cull, or utility logs will not be included in allowable sale quantity calculations, because these amounts vary from site to site, and adequate estimates of cull or utility volume are not available.

2. The minimum utilization standards to be used for determining the harvest schedules on existing old-growth stands are shown in Table 3-3. In determination of harvest levels, slight variations are allowed to conform to existing inventories and yield tables.

Table 3-3

Minimum Utilization Standards on Existing Old-Growth Stands

Tongass National Forest	Chugach National Forest
Species/Product - All sawlogs	Species/Product - All sawlogs
Minimum d.b.h. - 9 inches	Minimum d.b.h. - 9 inches
Minimum Log Length - 12 feet	Minimum Log Length - 8 feet
Minimum top diameter (d.i.b.) - 6 inches	Minimum top diameter (d.i.b.) - 6 inches
Percent Sound Volume - 33 1/3	Percent Sound Volume - 33 1/3

3. Forest Supervisors will make provisions for the yarding of unmerchantable material from sales where there are transportation links to established communities, to improve utilization of firewood material.

4. Harvest scheduling will consider priorities for deteriorating stands, incompletely stocked stands, and stands that have achieved their productive potential. Scheduling also will consider the goals and objectives of the Forest Plan and the most efficient way of achieving them.

5. The Forest Service will continue the program to salvage beach logs in cooperation with the State of Alaska.

6. The Forest Service will plan sale offerings to encourage competitive bidding in a range of sizes and species that provides opportunities for small business enterprises.

Sale Administration

Frequency of timber sale inspections will be determined by the complexity of the timber sale and operator performance, with the objective being to ensure full contract compliance.

Project Monitoring

Each project will be monitored to evaluate the adequacy of management practices. Information collected in this process will be used to recommend improvements or changes in the planning of future activities.

Competitive Bidding and Small Business

Private enterprise will be encouraged to utilize timber resources. The Forest Service will plan sale offerings to encourage competitive bidding in a range of sizes and species that provides opportunities for small business enterprises. A fair share of timber will be set aside for small business operators.

Minerals and Geology

1. Require prospectors and claimants to comply with Federal and State mining and leasing laws, as well as National Forest mining regulations.

2. Operating plans required under the National Forest mining regulations will receive prompt evaluation through the IDT process and action by appropriate Forest Service personnel.

3. Prepare an environmental assessment for all operating plans.

4. Where the environmental analysis indicates significant impacts may occur, prepare an environmental impact statement to precede issuance of permits or the approval of an operating plan.

5. Bonds will be required in all cases where significant surface disturbance is anticipated, to ensure that adequate reclamation measures are provided.

6. The Forest Service assures prospectors and claimants right of ingress and egress granted under the General Mining Law of 1872, the Alaska Lands Act of 1980, the National Forest mining regulations, and other applicable statutes.

7. Mineral materials permits will be granted for extraction of sand, gravel, and rock when such resources are not reasonably available on private land, when it is consistent with the land-use plan, and when adequate environmental protection measures can be taken.

8. Where the opportunity exists, and in cooperation with the Alaska Department of Fish and Game, borrow pits will be designed and excavated to facilitate their conversion into salmon rearing ponds.

9. Encourage the exploration, development, and extraction of mineral and energy resources.

Recreation

1. Identify, designate, and manage the recreational resource of the National Forest for the greatest public benefit, considering national, Regional, and local needs.

2. Provide a broad spectrum of recreation opportunities in accordance with identified needs and demands. Use the Recreation Opportunity Spectrum (ROS) framework to inventory, provide planning input, manage, and monitor recreation opportunity. Use recreation improvements to facilitate dispersed recreation.

3. Use recreation opportunities identified through the Recreation Opportunity Spectrum (ROS) inventory in Forest plans. Give primary consideration to those recreation opportunities now being actively utilized by the public for recreation pursuits. Retain other identified opportunities to the extent possible.

4. Inventory and evaluate the visual resource as an integrated part of the Forest planning process, addressing both the landscape's visual attractiveness and the public's visual expectation. Assign adopted visual quality objectives (VQO's) through the Forest land management plan process to direct management practices for all definitive land areas.

5. Enter into cooperative ventures with the State (i.e., State Comprehensive Outdoor Recreation Plan), local groups, Native corporations, and other Federal agencies to aid in providing a balanced spectrum of recreation opportunities and to minimize unwarranted duplication of effort.

6. Direct private or commercial recreational developments to private lands to the extent possible. Commercial recreational developments will continue to be permitted on National Forest System lands where, consistent with land management plans, there is a demonstrated public need met and benefit derived from such services, and no private lands are available or suitable for development.

7. Incorporate in Forest land management plans proposals for recreational classifications that include significant portions of representative vegetative and landform types.

8. Designate, as part of the National Recreation Trail System, those land or water-based trails that have significant recreation values.

9. Identify and protect areas that possess unusual environmental, educational, recreational, and scientific values for public study, use, or enjoyment; lake and stream systems suitable for backpack, raft, and canoe trips; and rivers suitable for extended trips. Particular attention will be given to those areas of national or international significance.

10. Include off-road vehicle use in Forest land management Plans and implement off-road vehicle use to minimize adverse effects on the land and resources, promote public safety, and minimize conflicts with other uses of Alaska National Forest System lands. Classify areas and trails as to whether this use is permitted in Forest Plans. For subsistence purposes, snowmobiles, motorboats, and other means of surface transportation are permitted, subject to reasonable restrictions necessary to protect fish, wildlife, soil, and water.

11. Recognize and protect lands having special values, such as boat anchorages, small boat routes, ferry and tour ship routes, recreation beaches, popular deer hunting areas, wildlife observation areas, sport-fishing streams, and trails, as part of the land management planning process.

12. Maintain the quality and diversity of recreational experiences and opportunities presently available on the Chugach National Forest by proposing a formally designated system of roadless recreational and wilderness areas.

13. Promote the design, operation, and maintenance of marine-related facilities. A cooperative effort with others, including State and other agencies, is required. Locate and establish roads and trails necessary to provide reasonable access to recreational attractions and to simple, dispersed campsites, where planning indicates this is an objective.

14. Use volunteers and cooperative manpower programs to the fullest extent possible to increase the level of maintenance.

15. Use interpretive services to promote energy and economic efficiency and to inform residents and visitors of recreational opportunities and management practices within the National Forest System by:

    a) Reviewing and managing existing facilities to ensure that only those facilities that can provide quality, energy, and economically efficient service are retained or expanded;

    b) Assisting the public in utilization of safe, enjoyable, energy-efficient recreation opportunities;

    c) Assisting future management by increasing public understanding of complex issues involved in managing a working forest.

16. Work with government and private interests to develop specific means and programs including, where feasible, naturalist personnel to serve the interests of cruise ship and State ferry travelers for the purposes of providing enrichment experience as to the nature, use, and values of the natural resources and cultural heritage of Alaska. Develop audiovisual and other programs that emphasize cost-effectiveness and reduce emphasis on the need for staffing or high-cost facilities.

17. Schedule resource development activities in areas that will not adversely impact currently utilized and other important recreation and visual resources to the extent possible.

18. In areas where Forest Plans have indicated that primary emphasis is on commodity production, minimize adverse impacts on the recreation and visual resources of the area. Provide recreation opportunities where feasible and compatible with other resource objectives. Protect important visual values without significant decrease in commodity outputs by full utilization of implementation measures available to meet adopted visual quality objectives established as a result of the Forest planning process.

19. Work with other agencies on programs for improving the knowledge base involving recreation supply and demand.

20. Locate new recreation facilities to utilize public transportation systems and facilitate energy-efficient forms of recreation uses.

21. Implement management actions that result in increasing receipts, to recover more of the operation and maintenance costs of charge sites and reduce competition with the private sector.

22. Recognize that recreation use radiates from communities and service centers; encourage private land and capital to develop services and accommodations to meet demands. Complement this development by facilitating the use of dispersed recreation opportunities in a radiating pattern from these service centers.

23. Implement "no trace" woodsmanship and "pack-it-in/pack-it-out" programs for all dispersed recreation visitors.

Wilderness

The 1964 Wilderness Act has the flexibility to allow existing uses to continue in an area if compatible with wilderness values. In addition, the Alaska Lands Act specifically authorizes a number of uses to minimize impacts on current users of the land and to provide for facilities necessary for certain types of economic development. These special provisions of the Alaska Lands Act are covered in the policy provisions of this section. The policies from the 1964 Wilderness Act, as stated in Forest Service Manual 2320, apply, except as amended by these Alaska Lands Act policies. Any alternative use restrictions for individual wilderness areas will be made through the Forest land management planning process and must have public involvement and support.

1. Management prescriptions for individual wilderness areas will be developed through the Forest planning process. Restrictions on public uses may be made in these plans with public involvement and support.

2. Reasonable conditions may be imposed on any use, if necessary, to protect soil, water, or other resources from damage.

3. Airplanes, motorboats, and snowmachines (during periods of adequate snow cover) and nonmotorized surface transportation methods will be allowed within a wilderness. No overall prohibitions will be imposed on these uses. However, motorized use may be prohibited or restricted in designated areas through the planning process; formal public hearings will be held on any such proposal, in addition to the public involvement which develops the proposal.

4. Adequate and feasible access is given to owners of land, subsurface rights, valid mining claims, or other valid occupancies which are within or effectively surrounded by a wilderness area.

5. Hunting, fishing, and trapping will continue, subject to State regulations.

6. Timber will not be cut, sold, or harvested as a part of the regular timber sale program. The following types of uses may be permitted if done in a manner that minimizes impacts on the wilderness (standards and guidelines on permitted uses of wilderness will be developed through the planning process in 1 above):

   a) Salvage of beach logs, if done in a manner that leaves no lasting impact on the beach or uplands;

   b) Salvage timber cut as part of some authorized use within the wilderness (e.g., clearing for a fish hatchery);

   c) Fuel, shelter, or other nonwasteful subsistence uses, if the individual does not have a suitable source equally accessible outside of the wilderness;

   d) Cutting of trolling poles on an emergency basis by fishermen using adjacent waters;

   e) Cutting timber for use within the wilderness for authorized uses (e.g., trail maintenance, shelter construction).

7. Aquaculture projects may be authorized in a wilderness to meet the goal of restoring and maintaining fish production to optimum sustained-yield levels. Cooperative fisheries planning with the State will be the basis for determining aquaculture facilities needed within wilderness areas. To the extent that opportunities are available and economically feasible, manmade facilities and treatments that would introduce new species or gene pools into a watershed will be planned for areas outside wilderness. However, all forms of aquaculture projects may be authorized in wilderness if necessary to meet the goal.

8. Privately constructed cabins or similar structures:

   a) Existing valid special-use permits for cabins, homesites, or similar structures will be renewed, unless the Regional Forester finds (following notice to and an opportunity for the permittee to respond) that the permit constitutes a direct

threat or a significant impairment to the purposes for which the wilderness was established.

b) Existing cabins and related structures for which a valid permit does not exist may be issued nontransferable, renewable 5-year special-use permits for customary uses which are compatible with the purposes for which the wilderness was established. No permit will be issued for private recreation use.

c) Construction of new cabins may be authorized by the Regional Forester by nontransferable, 5-year special-use permits. The proposed cabin must be either directly related to the administration of the wilderness or necessary for an authorized activity or use where the applicant has no reasonable alternative site for constructing a cabin. No permits shall be issued for the construction of private recreation cabins. Any new cabin constructed will be the property of the United States.

d) Cabins or other structures not under permit shall be used only for official government business, provided that, during emergencies involving human safety or where designated for public use by the Forest Supervisor, such cabins may be used by the general public.

9. Existing public recreation cabins and shelters may continue to be used, maintained, and replaced. A limited number of new cabins and shelters may be constructed and maintained where necessary for the protection of public health and safety. Public use patterns will be monitored, and the location and number of cabins and shelters will be adjusted to best fit the health and safety needs of the user. A recreation opportunity spectrum and public health and safety analysis will be the basis for making decisions through the Forest planning process. Congressional committees shall be notified of any proposed addition or deletion of cabins or shelters within wilderness.

10. Persons who, on or before January 1, 1979, were engaged in adequately providing any other type of visitor service shall be permitted to continue providing such services within that wilderness if consistent with wilderness purposes.

11. Existing navigation aids, communication sites, and facilities for national defense purposes, weather, climate, and fisheries research and monitoring are permitted. New facilities for these purposes shall be permitted, but only in accord with conditions which minimize adverse effects on the wilderness. The use of motorized access and equipment is authorized. Forest Supervisors will consult with permittees to develop procedures which will minimize impacts on the wilderness without unreasonably limiting the operation and maintenance of permitted facilities.

12. Forest Supervisors will jointly plan their wilderness areas with appropriate State agencies to resolve joint issues in wildlife and

fish management, compatible use of State-owned or controlled lands, and to establish mutually beneficial direction.

13. Key parcels of private land will be acquired as opportunities arise through land purchase, donation, or exchange authorities. Such acquisition will be on a voluntary basis.

14. Guidelines will be developed through the Forest planning process for the Forest Service use of motorized equipment in wilderness. The Forest Service will minimize the impact of its own activities on wilderness and on the experience values of the visitor.

15. The Forest Service shall permit the continuance of existing uses and the future establishment and use of temporary campsites, tent platforms, shelters, and other temporary facilities and equipment directly and necessarily related to the taking of fish and wildlife. A revokable special-use permit will be issued to allow such occupancies. The Regional Forester may determine, after adequate notice, that the establishment and use of new facilities or equipment would constitute a significant expansion of existing facilities or uses, which would be detrimental to the purposes for which the wilderness was established, including its wilderness character. Forest land management plans will identify the location and levels of such use as of December 2, 1980, and the need to expand or restrict such use.

16. Implement "no trace" woodsmanship and "pack-it-in/pack-it-out" programs for all wilderness visitors.

More specific direction can be found in Forest Service Manual 2320, R-10 Supplement.

Cultural Resources

1. Manage cultural resources as a nonrenewable national heritage:

   a) Ensure cultural resource specialists input to project planning at the earliest possible time.

   b) Evaluate cultural resources for inclusion in the National Register of Historic Places.

   c) Forest Service plans and programs affecting cultural resources need to contribute to the preservation and enhancement of cultural resources and to assure access to sites or resources important to traditional Native religious practices, rites, or ceremonies.

   d) Avoid adverse effects, where possible, or develop mitigation alternatives in consultation with the State Historic Preservation Officer and Advisory Council on Historic Preservation, after obtaining and considering input from affected Native groups.

2. Encourage and cooperate with recognized educational institutions in the identification and study of historic and archaeological sites.

3. Provide cultural awareness opportunities for all Forest Service personnel to illustrate and foster an awareness and understanding of the variety, complexity, and adaptability of prehistoric and historic Native cultures of the Region.

4. Cooperate with the State and Native owners of cultural resources to develop programs for public interpretation of and education about cultural resources and their management on National Forest System lands.

5. Develop cooperative agreements with Native groups to protect and manage cultural resources.

Transportation

Transportation Resource Management

1. The Forest Service will employ a wide range of choices in methods for managing roads. The following goals will be considered:

   a) A range of recreational experiences will be provided from pedestrian-only to full-use motorized vehicles.

   b) The need for the dispersal of people to accommodate fishing and hunting and nonconsumptive use of wildlife.

   c) The long-term land management objectives of the accessible land area.

2. The Forest Service endorses cooperative use of the Forest Development Road System for hauling commercial products, recognizing that user conflicts will occur in some situations. The commerical user hauling from other than National Forest System lands is expected to assume a share of the original construction and maintenance costs of the roads used. The costs will be proportioned on the basis of the use of the hauler and the total use of the road.

3. Conservation of petroleum energy supplies will be considered in the location, design, construction, and operation of the transportation system.

4. Roads that are not part of the permanent transportation system will have vegetation established within 10 years following termination of the timber sale contract or other permit or lease under which it was built.

5. Roads will be constructed in the most cost-efficient manner, considering other resource values. The Forest highway program and joint financing of construction will be used as methods to construct facilities to a higher standard where appropriate.

Transportation and Utility Corridors

1. Transportation and utility corridor planning and development will be in compliance with the policies and criteria established in this and other resource elements. Transportation facilities constructed by the Forest Service will meet standards required for the use, management, and protection of the National Forest System, considering safety, costs of transportation (including operation and maintenance), and impacts on other resources.

2. Transportation and utility corridor planning and development will be coordinated with the Canadian, Federal, State, and local government agencies, as well as private landowners. Transportation connections by the Forest Service will not be made between communities or emerging communities without the participation and collaboration of State and local governments, communities, and affected individuals.

3. The State of Alaska has identified several natural transportation corridors in Southeast and Southcentral Alaska for possible land transportation facilities. The primary function of these corridors is for the transportation of people, goods, and services between communities. Consideration of the allocation of lands along these corridors for transportation and utility purposes is required in Forest planning. Allocated transportation corridors will be included in Forest highways as appropriate.

4. Transportation planning will be integrated with present and future land management plans to the extent feasible. Forest Plans will show existing and anticipated Forest arterial and major collector corridors. Plans will identify, as far as possible, what modes of transportation will be developed for a given area. Water transportation modes and anticipated terminal transportation facilities will be specified where logging activities, ferry terminals, public access, barge ramps, and similar facilities are intended. The likely corridor locations for other transportation facilities will be subsequently developed.

5. Approved transportation and utility corridor proposals and plans will be integrated with Forest Plans at all planning levels to utilize each corridor to the greatest extent possible. Corridors for future utilities usage will follow existing and future land transportation routes to the extent practicable and appropriate. Electrical transmission facilities constructed and maintained without road access need not follow road corridors.

6. Existing transportation corridors are recognized as the combination of land, water, and air transportation modes that provide transportation access between communities and other developed use areas in Alaska. Existing utility corridors are those land and water-based routes over which pipelines, electrical transmission lines, or communication lines traverse where utilities are being provided from the source to a community or major user or between communities.

Lands

1. Work actively with State and local governments for full compliance with the intent of the Alaska Statehood Act. To the extent possible, fulfill the needs for community expansion and recreational areas, as well as for prospective community centers.

2. Ownership adjustment needs will be identified as part of the Forest planning process. Emphasis will be directed toward State selections adjacent to existing communities. It is Forest Service policy to work with State agencies and local communities to substantially eliminate Forest ownership in and adjacent to communities where State, borough, or community governmental jurisdiction should logically preside.

   Prepare a landownership adjustment plan. Emphasize improved landownership patterns and management opportunities resulting from State and Native land conveyances. Consider acquisition of isolated land in other ownerships at critical locations in light of possible mutual benefit to landowners and the Forest Service.

3. Known State selections, Native corporation selections, and Native allotment claims will be considered in the Forest planning process.

4. Uses that can reasonably be accommodated on other lands will not be authorized on National Forest System lands.

5. When permitted by the Alaska Lands Act, allow existing isolated hunter cabins, recreation residences, and residence permits and approved groups of existing recreation residences and residence permits that are subject to the provisions of the permits, unless a higher public need is demonstrated through the Forest planning process. (Refer to the wilderness element for policies on cabins in the wilderness.)

6. Administer outfitting and guiding activities associated with National Forest System lands under the occupancy permit system, with consultation and coordination with appropriate agencies.

7. Decisions on occupancy permits will be evaluated for compatibility with long-term public interest, based on a consideration of environmental values, economic feasibility, and a determination of social and economic benefit. Permits will not be approved solely for the purpose of creating business opportunities.

8. Work actively with Native corporations for full compliance with the intent of the Alaska Native Claims Settlement Act.

9. Review and adjust special-use fees on a planned basis to comply with the Federal Land Policy and Management Act.

10. Survey and maintain boundary lines resulting from State and Native conveyances and boundary lines presenting significant potential

management problems on a planned basis. Monitor unsurveyed boundary lines to minimize future problems and assist in establishing survey priorities.

11. Identify areas suitable for and representative of various ecosystems as part of a research natural areas/ecological reserves system. Select each research natural area to represent the greatest number of ecological and geological needs possible, locating sites on lands already withdrawn when appropriate, by following in each Forest Supervisor's area the sequential planning and selection steps contained in the implementation plan for establishing research natural areas and ecological reserves (Appendix A).

Forest Pest Management

Insects and Disease

1. In general, native insect outbreaks or disease conditions in old-growth forests will be allowed to run their course. Tree losses will be accepted, yet harvesting flexibility will be maintained to take advantage of timber salvage opportunities. Insect suppression may be justified in high-quality, old-growth stands that cannot be salvaged immediately or that lie near recreation areas and communities where scenic values are high.

2. From an insect or disease standpoint, logging in old-growth timber should be concentrated in the stands that are least able to recover from insect or disease damage and where the greatest losses, therefore, occur.

3. The primary approach to insect and disease management for second growth should be prevention, augmented by suppression. Prevention consists largely of stand manipulation to maximize effects of natural pest mortality factors. An example is the design of smaller clearcuts on a staggered harvesting schedule. This cutting pattern reduces the area of single-aged, contiguous stands, conducive to the buildup of certain insect populations. Another example is the removal of all dwarf mistletoe-infected western hemlock within harvest units.

4. Forest insect and disease detection and evaluation surveys will be conducted, and recommendations will be provided on appropriate methods of preventing or otherwise managing insect or disease problems. This service can include field evaluations, written reports, and formal and informal training.

Pesticide Use

1. Pesticides will be used only when resource management objectives are best accomplished by this means. When technologically available and economically feasible, biological, cultural, or integrated techniques will be used in place of or in association with pesticides. An example is the reliance on mechanical control exclusively or

mechanical brush control supplemented with herbicide treatment of cut stems, as opposed to full reliance on herbicide application alone.

2. Biological, environmental, and economic costs and benefits of pesticide use are to be identified and weighed prior to Forest Service application of pesticides on National Forest System land. Similar assessments will be requested from prospective State, other Federal, grantee, permittee, and licensee applicators on National Forest System land. Environmental factors to be weighed in pesticide use decisions are likely adverse effects to nontarget plants, wildlife, fish, water supplies, and human safety. At a minimum, no pesticide application on the National Forests should be allowed to reduce wildlife or fish habitat or populations below levels determined jointly by the Forest Service and other agencies having management jurisdiction.

3. Pesticides for other than "housekeeping" purposes will be employed only after such use has been documented in an Environmental Impact Statement or an environmental assessment and recommended for approval by the Integrated Pest Management Working Group.

4. Environmental Impact Statements dealing with pesticide projects will be available for public review. When environmental statements are not prepared, the availability of the environmental assessments will be announced.

5. When pesticide use is judged necessary, selection and application will be based on the following guidelines:

   a) Those application methods and formulations will be used that are most effective in suppressing the pest, most specific to the target organisms, and least harmful to nontarget components of the environment.

   b) In operational pest management programs, only those pesticides will be used that are registered in accordance with the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, except as otherwise provided in regulations issued by the U.S. Environmental Protection Agency or the U.S. Department of Agriculture.

   c) Application will be restricted to the minimal effective dosage that, when precisely applied to the target area at optimum times, will accomplish the resource management objectives.

6. Provision will be made for review and approval of pesticide use proposals by concerned Federal, State, and local agencies, where appropriate required legal clearances will be obtained.

7. Pesticides will be handled, stored, and disposed of in accordance with Federal, State, and local laws and regulations.

8. Forest Service investigations will be conducted to evaluate the effectiveness and environmental safety of new or improved pest management tools and methods to maintain a state-of-the-art capability for pesticide management.

9. Training will be provided for all personnel who handle pesticides or who supervise their use. Training of personnel involved in pesticide use management is basic to accomplishing a safe, effective, and efficient job. Commitment can be obtained only when personnel recommending, supervising, or using pesticides understand the complexity of the task. Only qualified personnel will recommend and use pesticides. Qualification standards will be equal to or greater than those required by Federal and State training and certification plans. Personnel recommending, supervising, or using restricted pesticides will be certified and licensed as required by the State.

10. Where endangered or threatened species habitat is involved, pesticides will be used only after it has been determined, in conjunction with Federal and State wildlife management specialists, that such use will not adversely affect either the species or their critical habitats.

11. Monitoring programs will be conducted to determine whether the pesticide has been applied safely and restricted to the target area. Monitoring to quantify the environmental effects of a pesticide being developed for forestry use may be required to secure registration of the material. An environmental assessment should identify the potential for adverse environmental effects and the degree and complexity of monitoring required.

Protection

1. In the majority of cases, it is the responsibility of Forest users to provide for their own welfare and safety while working in, or visiting, the generally undeveloped portions of the Forests. Assist users in assuming this responsibility through programs of public information and education.

2. In the event of an emergency involving an imminent threat to life and property, render all available assistance.

3. In the event of a major disaster, assist State and local governments in carrying out their responsibilities to alleviate suffering and damage. To effect such assistance, develop a coordinated disaster plan with other agencies responsible for disaster relief.

4. Legal responsibilities for search and rescue lie with the U.S. Coast Guard and the Alaska State Troopers. When emergencies involving search and rescue occur on National Forest System lands, upon request from the above agencies, assign personnel to assist.

Cooperate with Federal and State agencies and local governments in preparing search and rescue plans that define the Forest Service role in assisting search and rescue operations.

5. Through public information programs, explain the impact of vandalism and encourage more positive use of the Forest and more considerate treatment of others.

6. Emphasize cooperative law enforcement activities with Alaska State Troopers in dealing with and correcting violations of State and Federal laws on National Forests. Use trained Forest Officers to assist in enforcing Federal laws and regulations, as appropriate.

7. Participate with the State of Alaska and other cooperators in development and implementation of the Alaska Avalanche Warning System and other related avalanche control activities.

FOREST PLANNING GUIDANCE

This section contains two types of planning guidance. The first is tentative RPA activities, outputs, and costs for the four main National Forest System Administrative Units in the Region. The second is additional planning guidance for the Chugach and Tongass National Forests.

Tentative Distribution of Regional Objectives

The Region's share of the 1980 RPA Recommended Program displayed in Table 3-1 is further divided among the various Administrative Units in the Region. In the Alaska Region, tentative targets are distributed among four National Forest Administrative Units: the Chugach National Forest and the Ketchikan, Chatham, and Stikine Areas of the Tongass National Forest. Tables 3-4 through 3-7 display the tentative outputs, activities, and costs for these units. These distributions are based on existing management plans and direction and other available information that was used to develop the RPA Program and subsequent budget proposals. Regional issues and concerns also were considered in the distribution of targets to the Forests. These targets may require future adjustment as the RPA Program is updated for 1985.

The Tongass and Chugach National Forests will consider a wide range of alternatives during the initial preparation and revision of Forest Plans and are not to be limited by the RPA Program targets. However, each Forest is directed to formulate at least one Forest Plan alternative that meets or exceeds the RPA targets tentatively assigned to that Forest. The emphasis in Forest planning should be toward the future and how the inherent capabilities of the Forest can best be used to meet people's needs. The results of this analysis, in the form of Forest planning alternatives, will be incorporated into the Regional and national data bases and will be used for the Region's proposed updates to the RPA Recommended Program. The

Table 3-4

Tentative 1980 RPA Annual Program Outputs,
Activities, and Costs for the Chugach National Forest

Program Element and Activity	Unit of Measure	Annual Targets								
		1982	1983	1984	1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
Recreation										
Developed Rec. Use (incl. VIS)	Thousand RVD's	665.6	870.4	972.8	1,126.4	1,280.0	1,331.2	1,433.6	1,792	2,150.4
Dispersed Rec. Use (incl. wildlife and fish)	Thousand RVD's	1,156.7	1,237.4	1,291.2	1,345	1,614	2,178.9	2,421	2,555.5	2,690
Trail Const./Reconst.	Miles	10.8	11.2	11.2	11.6	12	12.4	12.8	13.2	13.6
Wilderness										
Wilderness Management[1]	Thousand Acres	0	0	0	0	0	0	0	0	0
Wildlife and Fish										
Wildlife Habitat Improvement	M Acre Equiv.	3.3	3.3	3.9	3.9	3.9	3.8	3.4	1.4	1.4
Anadromous Fish Improvement	Thousand Pounds	54.6	135.5	357.8	469.5	1,478.0	3,033.2	4,046.8	4,046.8	4,046.8
Timber										
Programmed Timber Sales Offered	Million Board Feet	15	14	10	10	10	10	10	10	10
Reforestation	Acres	200	200	200	200	124	100	100	100	100
Timber Stand Improvement	Acres	65	65	65	65	100	100	100	100	100
Water										
Meeting Water Quality Goals	MM Acre-Feet	43	43	43	43	43	43	43	43	43
Minerals										
Mineral Leases and Permits	Operating Plans	65	70	77	83	87	94	109	114	119
Human and Community Development										
Human Resources Programs[2]	Enrollee Years	207	207	207	207	34	34	34	34	34
Fire Management Effectiveness Index	Dollars per M Acres	18	19	19	19	19	19	19	18	18
Soil and Water Resource Improvement (Imp. Watershed Condition)	Acres	45	50	50	50	50	50	50	50	50
Road Const. and Reconst.[3]	Miles	0	0	0	0	0	0	0	0	0
TOTAL Funds	MM Dollars	16.7	17.1	16.9	17.0	12.8	13.0	12.6	12.5	12.0

[1]Wilderness designation on the Chugach National Forest is under consideration.
[2]Human Resources Programs, whose funds are allocated to the Forest Service, are not included in figures beyond 1985.
[3]Miles of road constructed by public works contract. Timber purchaser road construction mileage is not included.

Table 3-5

Tentative 1980 RPA Annual Program Outputs,
Activities, and Costs for the Stikine Area, Tongass National Forest

Program Element and Activity	Unit of Measure	Annual Targets								
		1982	1983	1984	1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
Recreation										
Developed Rec. Use (incl. VIS)	Thousand RVD's	55.9	73.1	81.7	94.6	107.5	111.8	120.4	150.5	180.6
Dispersed Rec. Use (incl. wildlife and fish)	Thousand RVD's	1,010.5	1,081	1,128	1,175	1,410	1,903.5	2,115	2,232.5	2,350
Trail Const./Reconst.	Miles	2.7	2.8	2.8	2.9	3.0	3.1	3.2	3.3	3.4
Wilderness										
Wilderness Management	Thousand Acres	558	558	558	558	558	558	558	558	558
Wildlife and Fish										
Wildlife Habitat Improvement	M Acre Equiv.	0.9	0.9	0.7	0.7	0.7	0.4	0.2	0.2	0.2
Anadromous Fish Improvement	Thousand Pounds	42.0	104.1	275.2	426.8	1,478	3,033.2	4,046.8	4,046.8	4,046.8
Timber										
Programmed Timber Sales Offered[1]	Million Board Feet	105	127	111	93	108	108	108	108	108
Reforestation	Acres	530	550	550	550	540	500	500	500	500
Timber Stand Improvement[2]	Acres	2,030	2,030	2,030	2,030	2,322	2,203	2,203	2,203	2,203
Water										
Meeting Water Quality Goals	MM Acre-Feet	30	30	30	30	30	30	30	30	30
Minerals										
Mineral Leases and Permits	Operating Plans	40	43	47	52	54	58	67	70	74
Human and Community Development										
Human Resources Programs[3]	Enrollee Years	24	24	24	24	0	0	0	0	0
Fire Management Effectiveness Index	Dollars per M Acres	18	19	19	19	19	19	19	18	18
Soil and Water Resource Improvement (Imp. Watershed Condition)	Acres	70	115	120	120	120	122	122	122	122
Road Const. and Reconst.[4]	Miles	2	2	0	3	1	1	1	1	1
TOTAL Funds	MM Dollars	24.5	25.2	25.0	24.1	20.7	20.8	19.9	19.8	19.0

[1]Volumes sold will be carefully monitored. Adjustments to the volume prepared and offered from the Tongass National Forest will be made as needed to ensure that the supply to dependent industry does not drop below the decade average of 4.5 billion board feet, as required by the Alaska Lands Act.

[2]Timber Stand Improvement (TSI) includes precommercial thinning and 510 to 670 acres of other TSI.

[3]Human Resources Programs, whose funds are allocated to the Forest Service, are not included in figures beyond 1985.

[4]Miles of road constructed by public works contract. Timber purchaser road construction mileage and Tongass Timber Supply Fund mileage are not included.

Table 3-6

Tentative 1980 RPA Annual Program Outputs,
Activities, and Costs for the Chatham Area, Tongass National Forest

Program Element and Activity	Unit of Measure	Annual Targets								
		1982	1983	1984	1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
Recreation										
Developed Rec. Use (incl. VIS)	Thousand RVD's	452.4	591.6	661.2	765.6	870	904.8	974.4	1,218	1,461.6
Dispersed Rec. Use (incl. wildlife and fish)	Thousand RVD's	1,651.2	1,766.4	1,843.2	1,920	2,304	3,110.4	3,456.0	3,648	3,840
Trail Const./Reconst.	Miles	8.1	8.4	8.4	8.7	9.0	9.3	9.6	9.9	10.2
Wilderness										
Wilderness Management	Thousand Acres	2,536	2,536	2,536	2,536	2,536	2,536	2,536	2,536	2,536
Wildlife and Fish										
Wildlife Habitat Improvement	M Acre Equiv.	0.9	0.9	0.7	0.7	0.7	0.4	0.2	0.2	0.2
Anadromous Fish Improvement	Thousand Pounds	55.6	138.1	364.6	597.5	2,217.0	3,791.5	5,058.5	4,451.5	4,451.5
Timber										
Programmed Timber Sales Offered[1]	Million Board Feet	163	117	133	106	115	115	115	115	115
Reforestation	Acres	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350
Timber Stand Improvement[2]	Acres	1,922	1,922	1,922	1,922	2,300	2,070	2,070	2,070	2,070
Water										
Meeting Water Quality Goals	MM Acre-Feet	66	66	66	66	66	66	66	66	66
Minerals										
Mineral Leases and Permits	Operating Plans	43	47	51	56	58	62	74	77	80
Human and Community Development										
Human Resources Programs[3]	Enrollee Years	90	90	90	90	0	0	0	0	0
Fire Management Effectiveness Index	Dollars per M Acres	18	19	19	19	19	19	19	18	18
Soil and Water Resource Improvement (Imp. Watershed Condition)	Acres	250	250	250	250	252	252	252	254	256
Road Const. and Reconst.[4]	Miles	3	4	1	2	2	2	0	1	0
TOTAL Funds	MM Dollars	26.1	27.0	26.7	26.5	23.6	23.6	22.6	22.6	21.7

[1]Volumes sold will be carefully monitored. Adjustments to the volume prepared and offered from the Tongass National Forest will be made as needed to ensure that the supply to dependent industry does not drop below the decade average of 4.5 billion board feet, as required by the Alaska Lands Act.

[2]Timber Stand Improvement (TSI) includes precommercial thinning and 300 to 400 acres of other TSI.

[3]Human Resources Programs, whose funds are allocated to the Forest Service, are not included in figures beyond 1985.

[4]Miles of road constructed by public works contract. Timber purchaser road construction mileage and Tongass Timber Supply Fund mileage are not included.

Table 3-7

Tentative 1980 RPA Annual Program Outputs,
Activities, and Costs for the Ketchikan Area, Tongass National Forest

Program Element and Activity	Unit of Measure	Annual Targets								
		1982	1983	1984	1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
Recreation										
Developed Rec. Use (incl. VIS)	Thousand RVD's	126.1	164.9	184.3	213.4	242.5	252.2	271.6	339.5	407.4
Dispersed Rec. Use (incl. wildlife and fish)	Thousand RVD's	481.6	515.2	537.6	560	672	907.2	1,008	1,064	1,120
Trail Const./Reconst.	Miles	5.4	5.6	5.6	5.8	6.0	6.2	6.4	6.6	6.8
Wilderness										
Wilderness Management	Thousand Acres	2,267.9	2,267.9	2,267.9	2,267.9	2,267.9	2,267.9	2,267.9	2,267.9	2,267.9
Wildlife										
Wildlife Habitat Improvement	M Acre Equiv.	0.9	0.9	0.7	0.7	0.7	0.4	0.2	0.2	0.2
Anadromous Fish Improvement	Thousand Pounds	57.8	143.3	378.4	640.2	2,217.0	5,308.1	7,081.9	7,688.9	7,688.9
Timber										
Programmed Timber Sales Offered[1]	Million Board Feet	192	208	206	251	227	227	227	227	227
Reforestation	Acres	70	70	70	70	130	150	150	150	150
Timber Stand Improvement[2]	Acres	3,983	3,983	3,983	3,983	3,278	3,627	3,627	3,627	3,627
Water										
Meeting Water Quality Goals	MM Acre-Feet	50	50	50	50	50	50	50	50	50
Minerals										
Mineral Leases and Permits	Operating Plans	42	45	50	54	56	61	70	74	77
Human and Community Development										
Human Resources Programs[3]	Enrollee Years	70	70	70	70	0	0	0	0	0
Fire Management Effectiveness Index	Dollars per M Acres	18	19	19	19	19	19	19	18	18
Soil and Water Resource Improvement (Imp. Watershed Condition)	Acres	60	115	115	118	120	120	122	122	122
Road Const. and Reconst.[4]	Miles	5	5	1	3	3	3	1	0	1
TOTAL Funds	MM Dollars	33.3	34.2	33.9	35.5	33.2	34.1	33.0	33.0	32.1

[1]Volumes sold will be carefully monitored. Adjustments to the volume prepared and offered from the Tongass National Forest will be made as needed to ensure that the supply to dependent industry does not drop below the decade average of 4.5 billion board feet, as required by the Alaska Lands Act.

[2]Timber Stand Improvement (TSI) includes precommercial thinning and 510 to 670 acres of other TSI.

[3]Human Resources Programs, whose funds are allocated to the Forest Service, are not included in figures beyond 1985.

[4]Miles of road constructed by public works contract. Timber purchaser road construction mileage and Tongass Timber Supply Fund mileage are not included.

final National RPA Program selected by Congress and the Administration, again with extensive public participation, will then be distributed to the Regions. Thus, as discussed in Chapter 1, Forest planning is both continuous and iterative.

Forest Plans

The National Forests will continue to be managed under multiple-use, sustained-yield policies that seek optimum use of the land and its resources and ensure a continuous supply of goods and services. Forest Land and Resource Management Plans will be developed as required by recent regulations (36 CFR 219) developed pursuant to the National Forest Management Act of 1976 (90 Stat. 2949; 16 USC 1601-1614).

Chugach Forest Plan

Policies in the Southeast Alaska Area Guide are being analyzed for applicability to the Chugach National Forest during the development of the Chugach Forest Plan. Standards and guidelines in the Plan will be consistent with the Regional standards and guidelines contained in this Guide.

Tongass Land Management Plan

Tongass Land Management Plan Implementation Direction

The following guidelines and standards should be used in the implementation of the Tongass Land Management Plan (TLMP). They are to be used on the three administrative areas of the Tongass National Forest to complete linkage between direction in the Plan and on-the-ground results and to guide revision of the Land Management Plan.

1. Area Guide policies retained as part of the TLMP will only be modified through the Forest Plan amendment or revision process. Public participation is required.

2. Forest Supervisors will periodically update the management direction associated with each management area to keep it current. If additional direction is needed, an interdisciplinary approach will be followed.

3. The interdisciplinary team efforts are to be documented in the planning record for the TLMP.

4. New or modified standards and guidelines may apply to individual projects, or management areas, or they may be forest-wide. All standards and guidelines will be consistent with the NFMA regulations. When application is for a unit smaller than the entire forest, this must be specified.

5. Detailed descriptions of projects, including environmental analysis, will be required in the project planning phase.

6. Field-specific standards and guidelines will be developed on a project-by-project basis as needed to supplement the forest-wide standards and guidelines.

7. Project planning will deal with sufficient area to ensure that road development and associated management activities are logical, cost-effective, and environmentally sound.

8. Projects will be defined and developed in a manner such that they are consistent with decisions and policies displayed in the TLMP. The Plan will be used as a basis for scheduling individual projects in the annual program budgeting process.

TLMP Special Area Planning

The Tongass Land Management Plan recognized a need for added planning efforts in the case of the national monuments, wilderness, and other land allocations, such as wild and scenic rivers. These special area planning efforts are basically a refinement of the existing Tongass Land Management Plan. The completed documents:

a. Produce localized standards and guidelines

b. Tie to the program budget, which includes proposed and probable management practices

c. Are accomplished within the Forest Service planning process, with special criteria provided by Forest Service Manual, legislation, regulations, and policy (i.e., Forest Service Manual wilderness planning direction, long-term contract policy)

d. Will vary in format according to the criterion driving the planning process. Environmental disclosure documentation (Environmental Assessment and/or Environmental Impact Statement) and subsequent Record of Decision will recognize these Special Area Plans as technical amendments to the approved Forest Plans. CEQ format will be followed.

Linkage Between Tongass Land Management Plan and the Program Budgeting Process

The key to the effectiveness of any kind of plan is in how well it is implemented. With Forest Land and Resource Management Plans, part of the implementing mechanism is the Program Development and Budgeting process. The RPA Program, Regional Guides, and Forest Plans provide the overall management framework and general direction that is implemented annually through this process. The process supplements the land and resource management plans by making annual incremented changes to implement specific programs, and adjust planned programs to reflect current national, Regional, or local priorities.

Activities and projects considered in the program budget process will have been examined in the context of the Plan and will be specified in sufficient detail to ensure proper coordination.

TLMP Monitoring and Evaluation

The direction on the monitoring and evaluation program stated in Part 2 of the Tongass Land Management Plan, pages 3-4, will be revised to address the status and projected effects of TLMP implementation.

Public Issues and Concerns Referred to the TLMP from the Regional Planning Process

The issues and concerns listed below were raised during the Regional planning process, and they were deferred to the Forest level for appropriate response. The Tongass National Forest will address these and other concerns that arise in the future.

1. Ability of the Tongass National Forest to sustain a sawlog level of 4.5 billion board feet per decade
2. Protection of fish and wildlife habitat and recreation opportunities
3. Environmental impacts related to timber harvest policies including deferring harvest in high-volume, old-growth stands and designing large cutting units
4. Location and scheduling of timber management activities
5. Accuracy of TLMP planning assumptions and resource inventories
6. Potential impacts and extent of mineral development
7. Potential hydroelectric sites
8. Monitoring and evaluation of the Tongass Land Management Plan
9. Economic efficiency of Forest management practices
10. Cost and extent of road network
11. Public participation in the development of prescriptive standards and guidelines

Status Report to Congress and Revision of the TLMP

Section 706(b) of the Alaska Lands Act requires the Forest Service to review and report to Congress on the Tongass National Forest in Southeastern Alaska by December of 1985. The report shall include, but not be limited to, (1) the timber harvest levels in the Forest since enactment of this Act; (2) the impact of wilderness designation on the timber, fisheries, and tourism industry in Southeast Alaska; (3) measures instituted by

the Forest Service to protect fish and wildlife in the Forest; and (4) the status of the small business set aside program in the Tongass Forest. Section 706(c) requires the study to be undertaken "in cooperation and consultation with the State, affected Native corporations, the Southeast Alaska timber industry, the Southeast Alaska Conservation Council, and the Alaska Land Use Council."

This report, after congressional review, is anticipated to provide direction for future land management planning on the Tongass National Forest. The Forest Service estimates completion of the TLMP revision process in 1989.

Resource Inventory

A Regional inventory program to satisfy information needs for Forest land and resource management planning is being developed. The program will identify data needs, address procedures for inventorying resources, coordinate interpretation standards, and specify information management requirements.

Guidelines to be used in developing the resource inventory program include the following:

1. Development of the inventory program will consider the adequacy of present inventory data.

2. Line management will be involved to ensure that the program integrates all needed resource information into a multiple-use oriented information base and will exercise controls necessary to achieve program objectives.

3. Interdisciplinary groups, composed of Forest staff members and cooperators, will be used to identify information needs.

4. Analysis of information needs and other procedures will recognize the levels of Forest Service planning and the different information needs associated with each level, including all legal and regulatory requirements.

5. Implementation of the program will be at the Forest level.

6. The inventory program will be coordinated with Forest Service research and other Alaska land managers.

MONITORING AND EVALUATION

Regional planning is a dynamic process that does not end with implementation of the Regional Guide. Monitoring and evaluation activities provide information to help determine whether or not Forest Service programs are meeting the Guide objectives. It is through this process that corrections and adjustments are made, the quality of implementation is assessed, and the need for change is determined.

Monitoring and evaluation are separate, sequential activities. Monitoring consists of collecting information from selected sources to measure the effects of Forest Service activities. It will provide information about how well programs are operating in terms of program output objectives, expected program costs, and adherence to standards and guidelines.

Areas to be monitored regionally are shown in Table 3-8. Specific actions, effects to be monitored, frequency of measurement, reporting periods, and expected precision and reliability of the monitoring process will be identified in the individual Forest Plans. States will also be encouraged to put this information in their Forest Resource Plans.

In the evaluation stage, information obtained in monitoring is examined with respect to the Regional Guide. Evaluation is the mechanism by which projected outputs and actual outputs can be compared. The Region will use the information provided by Forests, States, and other sources to prepare Regional evaluation reports. The majority of this information will come from Forest monitoring evaluation reports and other existing attainment reporting systems.

Using the existing Forest Service management review process, the Regional Forester will conduct reviews of National Forests to examine the degree to which Forest Supervisors are implementing management direction in the Forest Plans and Regional Guide, how well the Forest Supervisors' monitoring and evaluation systems are operating, and the appropriateness of adjustments and revisions.

Changes in the Regional Guide and Forest Plans are accomplished by amendments, revisions, or adjustments to the implementation of plans or programs. The method of change to be used depends on the significance of the deviation determined by the evaluation. Evaluation results will also be used to determine research needs to improve the Regional and Forest monitoring and evaluation systems.

Table 3-8
Regional Guide Monitoring Activities

Monitoring Category	Actions, Effects, or Resources To Be Measured	Purpose/Reason for Measuring	Source of Information
Land Condition and Resource Status	Productivity; capacity; production schedules; development schedules; long-term potential of resources such as timber, range, recreation, wildlife and fish, and visual quality	To determine whether the land and resources are being managed to meet long-term RPA Assessment goals and assumptions To identify and determine management practices and other conditions where insect, disease, other forest and range pests, and natural fuel accumulation situations are occurring that are creating special conditions or hazards to the use of National Forest and National Grassland resources	Forest Plans (including management prescriptions) and results of monitoring programs; updated RPA research and National Forest System assessment; and State Forest Resource Plans and monitoring results
Program Outputs	Short-term outputs (first 5 years of planning period)	To determine if RPA Program objectives are being met	Management Attainment Report (National Forest System and State and Private Forestry)
	Long-term outputs (after first 5 years) for National Forest System and State and private forests and rangelands	To ensure that Forest Plans consider the full range of capability; to ensure input into the next RPA update	Forest Plans, Regional Guide, and State Forest Resource Plans
Program Cost	Total budget expenditures for Forests, State and Private Forestry, and the Regional office	To compare actual expenditures with those projected in the Forest Plans and Regional Guides	Program Accounting and Management Attainment Reporting System (PAMARS); Forest Plans, and the results of monitoring programs
	Costs of selected activities by management area	To determine whether management costs have been predicted	Forest Plans' projected and actual costs for management practices by management area
Physical and Biological Effects	Effects on resources (such as soils, water, air, cultural, visual, threatened and endangered species, and wildlife and fish)	To determine whether effects were as anticipated	Monitoring results of Forest Plans and State Forest Resource Plans

Table 3-8 (Continued)

Monitoring Category	Actions, Effects, or Resources To Be Measured	Purpose/Reason for Measuring	Source of Information
Social and Economic Effects	Changes in areas such as income and employment; population; market and nonmarket dependency of local areas; structure of wood products industry; American Indian Religious Freedom Act special-use permits granted; payments to local governments and receipts to U.S. Treasury; energy efficiency; and other trends identified by Forests	To determine whether effects of Forest Service programs were as anticipated and whether Forest Service planning objectives need to change to meet changing socioeconomic conditions	Reports of State agencies (such as Environmental Security or Department of Community Affairs); Forest socioeconomic overviews; Forest Plans; results of inventory activities; Forest Service and county fiscal reports; 5-year timber mill census; Regional Energy Management Plan, fiscal reports; and other sources as appropriate
Research Implementation	Application of research results; changes in emphasis in research programs	To determine whether research has helped solve problems; whether research programs and National Forest System and State and Private Forestry perceived research needs are complementary; and whether National Forest System and State and Private Forestry Managers are using research results To determine how standards are being used and whether expected results are being achieved	Research attainment reports, Forest Plan prescriptions, Forest Plan monitoring activities and results, RPA objectives for research work unit descriptions, Regional Guide, Forest Plans, and State Forest Resource Plans
Standards and Guidelines	NFMA standards and guidelines; other standards and guidelines developed through the Regional Guide	To determine the level of adherence, effects, and adjustments needed for Regional standards and guidelines	Comments and results of 60-day review, Forest Plan monitoring results, timber management records and reviews, timber sale environmental assessments, and timber sale contracts and utilization studies
Agency Coordination	Effects of National Forest management on lands, resources, and communities adjacent to National Forest System lands and the effects on natural Forest management of activities on nearby lands managed by other Federal Government or State agencies or under the jurisdiction of local government or Alaska Native groups	To identify coordination needed with other government agencies' policies, plans, and goals To determine whether changes in Forest management activities are needed to lessen impacts on adjacent lands or because of activities on adjacent lands	Forest Plans and results of their monitoring plans; State Forest Resource Plans and results of their monitoring plans Other agency plans and policies, and results of public opinion monitoring

Chapter 4

STATE AND PRIVATE FORESTRY PROGRAM

OVERVIEW

The Forest Service's State and Private Forestry program offers financial, technical, and related assistance to State Forestry organizations and others to support the development of effective and improved Forest management, protection, and utilization practices, and to strengthen the capability of each State to manage its forests and related resources.

State and Private Forestry programs include rural forestry assistance on non-Federal forest lands; tree insect and disease management on all forested lands; urban and community forestry assistance; rural fire prevention and control on non-Federal forest lands and other rural lands; management and planning assistance to State Foresters or equivalent State officials; and assistance to ensure that new forestry technology and research results are promptly made available and implemented.

State and Private Forestry also includes certain programs funded by other Federal agencies, but administered by the Forest Service. These include cost sharing for reforestation and timber stand improvement (Agricultural Stabilization and Conservation Service); watershed planning and restoration and flood prevention (Soil Conservation Service); and rural community fire protection (Farmers Home Administration).

The Cooperative Forestry Assistance Act of 1978 authorizes the Secretary of Agriculture to cooperate with and assist the States in implementing Federal programs affecting non-Federal forest lands. State Forestry agencies are the principal delivery system for State and Private Forestry cooperative programs.

1980 RPA PROGRAM FOR STATE AND PRIVATE FORESTRY

The future management situation of the State and Private Forestry program for the Alaska Region will be guided by the 1980 National RPA Program. (See Table 4-1.) The Regional State and Private Forestry program and costs are based on State data and information provided for the program alternatives in the 1980 RPA Program and on established funding allocation procedures developed in cooperation with the National Association of State Foresters. State targets and funding allocations are based on current estimates. While Regional targets are firm, actual State objectives and proposed budgets may be modified during annual program budgeting as new allocation procedures are developed at the national level. New information developed during State forest resource planning may also modify these

Table 4-1

1980 RPA State and Private Forestry Outputs, Activities, and Costs for the Alaska Region

Program Element and Activity	Unit of Measure	Annual Units									
		1981	1982	1983	1984	1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
Cooperative Technical Assistance for Dispersed Recreation	M Acres	0.1	0.2	0.3	0.4	0.5	0.5	0.5	0.56	0.56	0.56
Cooperative Technical Assistance for Wildlife Habitat Improvement	M Acres	0.2	0.6	1.1	1.5	2.0	2.30	3.0	3.0	3.0	3.0
Cooperative Technical Assistance for Range Improvement	M Acres	0.8	1.8	2.9	3.9	5.0	5.0	5.0	5.0	5.0	5.0
Reforestation (RFA, FIP, ACP)	M Acres	0.4	0.5	0.6	1.6	1.67	2.88	5.7	6.35	7.01	7.44
Timber Stand Improvement (RFA, FIP, ACP)	M Acres	0.2	0.4	0.7	0.9	1.34	1.33	1.34	1.62	1.78	1.9
Timber Prepared for Harvest	MM Cu. Ft.	0.01	0.02	0.05	0.08	0.11	0.11	0.11	0.11	0.11	0.11
Woodland Owners Assisted	M Owners	0.8	1.3	2.4	3.0	2.8	2.7	2.7	2.7	2.7	2.7
Improved Utilization of Wood	MM Cu. Ft.	0.8	0.9	1.1	1.2	1.4	2.18	4.0	5.0	5.5	6.0
Insect & Disease Management Surveys & Technical Assistance	MM Acres	26	32	46	57	67	67	73	75	75	75
Rural Community Fire Protection	M Approved Application	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01
Fire Loss on Protected Area	M Acres Burned	152.6	158.7	169.0	189.2	170.1	170.1	170.1	170.1	170.1	170.1
Resources Management Planning	MM Acres	0.2	0.2	0.2	0.5	0.5	0.5	0.5	0.8	3.5	6.0
Cooperative T/A for Landowner Forest Management Plans	M Acres	0.02	0.10	0.19	0.27	0.36	0.36	0.36	0.36	0.36	0.36
Cooperative T/A	Person Years	2.0	3.2	4.5	5.7	7.0	7.2	7.2	7.5	9.5	9.5
Funds (1978 Dollars)											
Appropriated[1]	MM Dollars	1.6	2.0	2.2	2.4	2.6	3.0	3.1	3.2	3.3	3.2
Allocated[2]	MM Dollars	0.1	0.4	0.4	0.6	0.7	0.9	1.4	1.5	1.5	1.5
State and Private Forestry	MM Dollars	1.7	2.4	2.6	3.0	3.3	3.9	4.5	4.7	4.8	4.7

[1]Projected estimates of funds appropriated to the Forest Service for cooperative forestry assistance under P.L. 95-313.

[2]Projected estimates of funds appropriated to other USDA agencies for programs that receive assistance from the Forest Service and State Forestry agencies, including (1) forestry practices under the Agricultural Conservation Program and the Forestry Incentives Program, funded through the Agricultural Stabilization and Conservation Service; (2) rural community fire protection, funded through the Farmer's Home Administration; and (3) funds allocated to the Forest Service by the Soil Conservation Service for the forestry aspects of watershed planning, flood prevention, river basin surveys, and resource conservation and development.

allocations. All targets and funding levels are subject to negotiated agreements with individual State Foresters.

The base data and information for State and Private Forestry aspects of Forest Service planning are provided by the State Forest Resource Plans. The target date for completing these State Forest Resource Plans is 1983. Thus, the 50 States, like the National Forests, will have better information for the 1985 RPA Program update, which will consider public issues, management concerns, and resource opportunities.

Situation Statement

Changing ownership patterns of lands in Alaska are producing significant effects upon natural resource management. Passage of the 1959 Statehood Act and the 1971 Alaska Native Claims Settlement Act provided for the conveyance of approximately 148 million acres of land into State, local, and private ownerships. This has caused a dynamic shift of management responsibilities and objectives from federally controlled entities to the new landowners.

Resources of the forest lands selected for State and private ownership include lands that have remained relatively undeveloped. There has been little scientific study of the balance between the soils and the flora and fauna that occupy these relatively undeveloped lands. The objectives of the new landowners may vary considerably from those of the former Federal land managers. This may be particularly true for the private landowners. The new landowners will need time and assistance in developing sound management practices. The availability of Federal and State Forestry assistance programs and incentives will play a key role in development of these practices.

Existing Program Areas

Rural Fire Prevention and Control

Rural fire prevention and control is an important cooperative program with the State Forester. Under a program for the State to take over protection of its newly acquired lands, the Bureau of Land Management is continually transferring responsibility to the State for wildland fire protection in Southcentral and Interior Alaska, and the State is expanding its management capability to protect 75 million acres by 1985. With assistance from the Forest Service in information sharing and financing, the State will be better able to plan and implement its fire management responsibilities efficiently and keep natural resource loss to a minimum.

In addition to protection of rural lands and resources, the Forest Service and the State Forester are responsible also for assisting rural communities in the protection of lives and homes.

Although wildfire occurrence is infrequent in Southeast Alaska because of the moist maritime climate, hazards and risks are expected to increase as use and occupancy on forested lands increase and as more acres of mature timber are harvested.

Rural Forestry Assistance

The primary thrust of the Rural Forestry Assistance program in Alaska is training, technology transfer, and monetary support to the State Forester.

The current program emphasis by the State Forester has been education and training, timber sale preparation, harvesting assistance, and resource management planning assistance.

State and Private Forestry direct assistance has emphasized sawmill improvement and improved harvest and wood utilization programs because the State lacks capabilities in this area. Other programs include training, resource management planning, technology transfer, technical assistance, and resource utilization. A paramount need exists for development of an extension forestry program through the University of Alaska and the U.S. Department of Agriculture's Cooperative Extension Service. This program would provide renewable resource management education to rural landowners.

Assumptions.

1. Alaska Native corporations and other private landowners will seek to develop their forestry resources.

2. A majority of the timber harvested from private lands will be sold on the export market.

3. Alaska Native land selections include a large percentage of the highly productive forest lands that may be difficult to regenerate after harvest.

4. There will be a growing need to provide technical assistance and financial incentives to private forest landowners to manage their resources productively.

5. Oil prices will continue to rise, and wood energy will become more significant in Alaska.

6. Interior forests will be primary sources of energy and building materials for subsistence use in isolated villages, thus reducing the need to import.

7. State and private landowners will become concerned for opportunities to develop and use resources other than timber from their lands. The greatest opportunities appear to be in recreation-related resources and aquaculture.

Urban Forestry

The concept of urban forestry is relatively new in Alaska. However, nearly all urban areas in Alaska have forest settings, greenways and parks, or potential for open space. Few have developed urban forestry plans or urban forestry staffs.

The rapid expansion of Alaska's urban areas is contributing to a rapid deterioration of many of the values for which people move to Alaska. Planning is needed for the development and protection of the urban forest values.

Management and Planning Assistance; Technology Implementation

Programs under this element include organization management assistance to the State and to Native corporations and planning assistance to the State Forester.

The current program in Organization Management Assistance (OMA) has included innovative approaches to problem solving, decisionmaking, and organizing.

State and Private Forestry is cooperating with the State Forester to develop a State Forest Resource Plan. Funding and data are provided towards this effort. A 5-year resources program for State Forester activities will be part of the plan. This will include those activities under the Cooperative Forestry Assistance Act. The plan also will become the source of RPA update information.

In addition, the Alaska Lands Act provides for cooperative land-use plans with Native landowners.

Assumptions.

1. Activities that implement provisions in the Alaska Lands Act concerning Native landowners will increase.

2. In Interior Alaska, a gradual increase in interest in Forest management will result in more training and planning assistance.

Forest Pest Management

The current pest management situation is discussed in Chapter 2. Regional policies pertaining to pest management are found in Chapter 3.

STATE AND PRIVATE FORESTRY POLICIES

The following policies were developed by the Forest Service with assistance from the State of Alaska, Federal agencies, local governments, and private landowners during the development of the Southeast Alaska Area Guide. Slightly modified to bring them up to date and to apply throughout the State, they represent current management direction to State and Private Forestry programs in Alaska.

1. Work with other forest owners, through the Forest Supervisors and the land management planning process, toward a well-coordinated land management pattern in Alaska, in which activities on land under different ownerships complement each other to a large degree. An example is the development of well-conceived access easements through land of mixed ownership.

2. Provide opportunities for Native, other private, State, and local government interests to participate in the land management planning process and, as requested, provide technical assistance to them in land management planning, environmental education, and other State and Private Forestry programs.

3. Assist the State Forester in developing and implementing a State Forest Resource Plan for the protection of resources during operations, such as timber harvest, road construction, and fire suppression. Practices should protect wildlife and fish habitat, water resources, and land productivity.

4. Work with the State Forester to encourage participation in cooperative forestry activities among private landowners and industry.

5. Through the Forestry Incentives Program, the Rural Conservation and Development Program, and other similar cooperative measures, provide financial support and technical assistance to non-Federal landowners to promote improved management, protection, harvest, and marketing of timber resources in Alaska.

6. Keep landowners informed of new developments in Forest management research through a continuing program of information and education.

7. Make assistance available to other landowners in the identification and protection of important nontimber resource values.

8. Help others involved with resource management to develop a public awareness of the need to protect rare and endangered species of wildlife and plants.

9. Work with State agencies and landowners to assist in the control of possible nonpoint source water pollution resulting from forest land management operations and activities.

10. Provide technical assistance to owners and managers of non-National Forest System lands in matters relating to forest insect and disease management and in the use of chemical pesticides.

11. Promote rural area development through active participation in the Alaska Rural Development Council.

12. Assist in developing cooperative fire protection agreements with communities and Native corporations and in providing adequate fire protection for communities.

13. Provide for those Federal cooperative assistance programs that offer equal opportunity without regard to race, religion, creed, color, sex, or national origin.

Chapter 5
RESEARCH

OVERVIEW

The objective of the Forest Service research program is to provide the scientific basis for the management and use of the Nation's renewable natural resources. Research is conducted through a network of eight Regional Forest Experiment Stations and the Forest Products Laboratory at Madison, Wisconsin. Field studies and laboratory research are conducted at 81 locations throughout the United States, Puerto Rico, and the Pacific Trust Territories.

Research programs are planned jointly with the Nation's 61 forestry schools to promote more efficient use of research talents and facilities. The Forest Service, in conjunction with the forestry schools and the Cooperative State Research Service, conducted several research planning sessions during 1977 and 1978 to identify research needs. This effort, which involved more than 1,000 research users, led to the publication of both national and Regional research plans. These plans formed the basis for developing the 1980 RPA Research Program alternatives.

The following criteria were used to evaluate the RPA Research Program alternatives: research should be responsive to needs for which present technology is inadequate; research should contribute to increased national productivity; research should be responsive to national policies, particularly those enunciated by the Administration and Congress; and research should relate to changes in demand for technology, but recognize that the course of research should not shift drastically from historical trends.

In the 1980 Recommended RPA Program, research priorities were placed on the following:

1. Improving wood utilization

2. Developing more intensive Forest management practices to increase the Nation's timber supply and to provide biomass for energy

3. Providing new knowledge to deal with current and anticipated environmental issues, such as range, arid land, wildlife management, and tropical forestry

4. Increasing the land manager's stewardship capability in areas such as protection and pollution control

5. Resolving problems identified through the Regional and Forest planning processes

Future research planning will continue to be conducted under the auspices of Title XIV of the Food and Agricultural Act of 1977 and the Forest and Rangeland Renewable Resources Planning Act. Research needs identified through State and Forest Resource Plans and the Regional Guide will be incorporated into future research planning.

REGIONAL RESEARCH PROGRAM

Management practices within the forest ecosystems of Alaska must recognize the vital need to protect the forest and associated resources. The Forest Service research organization has responded to this need by developing programs that include the study of associated resources, such as fisheries, wildlife, soil, water, timber, and recreation. Much of the forest research in Alaska is conducted by Forest Service research laboratories in Fairbanks, Anchorage, and Juneau, Alaska, and in Seattle, Washington. Research by these field units of the Pacific Northwest Forest and Range Experiment Station, which is headquartered in Portland, Oregon, is done in cooperation with various State and Federal groups.

Research at Juneau

Research began at Juneau in 1924 and focused on timber yields, forest nutrition, and reforestation methods. The advent of large-scale timber harvests and new pulp mills brought expanded research efforts that emphasized the study of natural reforestation after large-scale clearcutting and the study of the effects of such logging on aquatic habitats critical to anadromous fish. Research at Juneau now comprises five principal areas.

Alternative Silvicultural Practices

Silvicultural prescriptions and improved timber harvesting methods are needed to ensure optimum production of wood products, as well as for stream protection, soil and site protection, aesthetic quality, wildlife, and other considerations. Guidelines are being prepared to cope with problem regeneration areas and sites that are damaged by windstorms.

Wildlife Habitat

The habitat requirements of many species of game and nongame animals need to be known to assess the effects on habitat of such activities as timber harvesting. Some activities that are destructive to habitat if misapplied may have negligible effects if properly applied. Certain practices have the potential for improving habitat.

Fish Habitat

Studies are under way to better define the freshwater habitat requirements of anadromous fish. This information will assist land managers in planning

timber harvesting and roadbuilding so that damage to the habitat can be reduced or prevented. Other studies involve analyses of spawning habitat conditions, the effects of low temperatures on fish embryo development and survival, and a method to measure intergravel waterflows in spawning beds. Development of strategies and techniques to protect and enhance the habitats of anadromous fish is an integral element in this research effort.

Slope Stability

Soil mass movements generated by logging and forest road construction frequently occur in Southeast Alaska. They also occur in areas that have not been disturbed. As timber harvesting continues to expand onto increasingly unstable slopes, we need to refine our ability to identify unstable soils and predict effects on downslope resources following debris avalanches and other mass movements. Hazard ratings are being developed for each soil type.

Insects and Diseases

Insects and diseases are being studied to learn their effects on both old-growth and young stands of spruce and hemlock trees. From this research, guidelines will be developed for preventing or reducing damage by destructive insects and diseases. Work is also under way to enhance the growth and development of spruce seedlings by inoculating them with beneficial fungi.

Research at Fairbanks

Scientists at Fairbanks began studies of Alaska's Interior forests, or taiga, in 1957. The focus was on the study of the reproduction of forest tree species, successional trends of Interior forests, and the effects of fire on hydrology and on nutrient cycling. These basic studies are continuing. Research work at Fairbanks may be grouped into seven principal areas, with several individual studies being conducted in each area.

Classifying Vegetation

Environmental and forest successional characteristics are being integrated in a classification system for the major types of vegetation in Interior Alaska. These studies will provide a sound hierarchical classification system for the types of vegetation in this area.

Fire Effects

The results of studies on fire behavior and the effects of fire on taiga and tundra plant communities will be applied to resource management objectives. This research also provides specific information to develop guidelines for prescribed burning, to predict conditions that follow wildfires, and to develop models that will give information on the types of fuels that may be expected from various kinds of vegetation in Interior Alaska.

Regenerating Vegetation

Strategies are being developed for regenerating and growing trees and shrubs in Interior Alaska. Within a few years, as a result of these studies, guidelines will be developed for regenerating genetically superior white spruce on the best growing sites. Guidelines also will be developed for prompt regeneration of hardwoods and silvicultural recommendations for managing hardwoods, white spruce, black spruce, and associated vegetation.

Insects

Forest insects are being studied to determine their effects on the regeneration of trees and shrubs of the taiga. From this research, guidelines will be developed for maintaining insect populations at levels that preclude them from reaching levels that are damaging to forests and related resources.

Soils and Water

This research at Fairbanks involves studies of the relationships of precipitation, runoff, and stream sedimentation in major vegetation types in undisturbed and managed conditions. From this research, guidelines will be developed so that resource managers can reduce erosion caused by land management practices in the subarctic. Guidelines also will be developed to help determine precipitation and runoff relationships on watersheds in several types of land-use areas. Finally, the research will provide a body of knowledge about watershed management that will be incorporated in comprehensive guidelines for managing the forests and related rangelands of Interior Alaska.

Wildlife Habitat

Habitat requirements and carrying capacities for wildlife species need to be understood to ensure that land management activities provide for healthy, stable populations. The habitat characteristics of wildlife will be examined with respect to the classification of vegetation units, forest succession, and regeneration and growing of trees and shrubs. Basic information on habitat requirements of various wildlife species can be used to manage or manipulate wildlife habitats.

Forest Products Utilization

The potential for using more of the timber supplies of Interior Alaska should be assessed. Available supplies, costs of production, and markets will have to be determined if a viable forest products industry is to be established in Interior Alaska. Feasibility analyses are under way as a prelude to forest resources development there.

Research at Anchorage

A forest research laboratory was established at Anchorage with the transfer of forest inventory work from Juneau. This research encompasses both coastal Alaska and Interior Alaska; its scope has been broadened from the

traditional forest inventory to evaluation of multiple renewable resources. Research work at Anchorage now comprises three principal areas.

Interior Alaska Multiresource Assessment

Information is being gathered on the renewable resources of the major river basins of Interior Alaska to estimate future levels of output under alternative resource management and use. In cooperation with major public land managing agencies, inventories are being conducted to provide complete assessments of individual and total resource situations. The kind and amount of use of renewable resources are surveyed. Improved inventory methods and data specifications also are receiving research attention.

Coastal Alaska Resource Analysis

Similar research is under way in Alaska's coastal areas to provide the information needed to effectively allocate the renewable resources of these lands to meet economic and social needs. Information needed and being collected includes amount, kind, condition, ownership, use, and location of renewable resources.

Economic Analysis of Timber Resources

Research is under way to identify the physical and economic opportunities to increase outputs from renewable resources on forest lands and rangelands. Current resource conditions and outputs will be related to the physical potential of the resources to identify the factors responsible for the difference between the current and potential outputs. The feasibility of overcoming these will be evaluated in terms of social costs, benefits, and investments required to meet specific output goals.

Research at Seattle

Pacific Northwest research units located outside Alaska that have broad Regional emphasis also have significant continuing activity in two research areas in Alaska.

Recreation and Aesthetic Quality

Interagency studies are under way that will provide a means for assessing a variety of resource planning and outdoor recreation policy alternatives through examination of key recreational, social, and economic components that may be affected by alternative land management actions. Comprehensive information will be provided on recreation use patterns and values and on aesthetic quality and lifestyle values necessary for evaluating the consequences of alternative management programs for Alaska's resources.

Forest Engineering

Steep, fragile slopes and requirements for soil and water protection pose special problems in harvesting Southeast Alaska's timber resources; sensitive permafrost and soil conditions complicate harvests in Interior Alaska. Providing a harvesting system capable of accessing these timber resources

is the objective of research on the evaluation of advanced logging systems able to yard with less road construction and reduced environmental effects.

Other Forest Service Research

Other units of the Pacific Northwest Station conduct research specific to Alaska's resource management needs that may be of a one-time or continuing nature. Units based in Portland, Oregon, have been, and in the future will be, carrying out research to develop information needed in managing Southeast Alaska's rich timber resource. Product recovery studies will determine optimum utilization of both small and large trees--and the kinds of mills, equipment, and facilities needed to obtain best recovery. Investigations will establish salvageability and product recovery from trees blown down for varying lengths of time. The Forest Products Laboratory at Madison, Wisconsin, provides specialized technical assistance in these and other utilization studies in Alaska.

Similarly, the station's Portland-based economics and marketing research work has included Alaska. Cost/benefit analyses are essential for informed management of the timber and other land resources of Southeast Alaska. The costs, returns, and schedule of volume available from implementing various management practices, such as thinning, have not been identified. The characteristics of markets around the Pacific rim need to be considered in relation to the end products of Alaska's timber industry, both to pinpoint opportunities and to identify trends that may affect the industry's feasibility.

Research by Non-Forest Service Groups

Closely coordinated with and complementing the Pacific Northwest Station research is work by a number of cooperating Federal and State agencies and universities. Prominent among these are work by the National Marine Fisheries Service on anadromous fish habitat requirements and the University of Alaska's research on nutrient cycling in Interior Alaska forests, vegetation-treatment-substrate topography correlations on denuded lands, and various recreation-related studies.

Research Needs

Research under way by the scientists of the Forest Service and other agencies will provide information needed now and in the future by land-use planners and land managers. The current effort is insufficient, however, to provide the basis for fully evaluating and implementing resource use alternatives that must be considered and, perhaps, implemented in the short term. A summary of research needs that require accelerated or new research efforts follows:

1. Basic characteristics and hydrologic responses of soil and streams to various timber harvest and other land-use practices

2. Habitat requirements of various species of birds, mammals, and fish and the effects of various resource management and use practices

3. Silvicultural prescriptions and timber harvest methods for wood production, stream protection, soil and site protection, wildlife, recreation opportunities, aesthetic quality, and other resource management considerations

4. Factors influencing the dynamics of important insects and diseases, technologies for quantitatively evaluating resource effects of these pests, and development of integrated pest management systems

5. Effects of fire on ecosystem structure and function and ways to minimize undesirable effects of burning and fire suppression activities

6. Integration of renewable resource inventories and demand assessments and development of more effective and reliable models and other tools for predicting future supply and demand, as a basis for decisions about land use and resource management for commodity and noncommodity outputs

The Forest Service RPA Research Program planned for the future will address these Alaska research needs. Table 5-1 summarizes scientist years and dollar investments planned for 1985 and 1990 and provides a basis for comparison with the 1981 program.

Table 5-1

RPA Research Program for Alaska--Pacific Northwest Forest and Range Experiment Station

Scientist Years (SY) and Investments (Thousands of Dollars)[1]

	1981[2]		1985		1990	
RPA Element	SY	M$	SY	M$	SY	M$
Recreation Seattle, Anchorage	0.5	46	2.0	225	2.5	315
Wilderness Seattle	0	0	0.2	50	0.3	50
Range Fairbanks	0	0	0	0	1.0	125
Wildlife and Fish Juneau, Fairbanks	5.4	872	12.2	1,440	15.0	1,815
Timber Juneau, Fairbanks, Seattle	7.0	652	13.4	1,495	16.0	1,935
Water Juneau, Fairbanks	2.2	339	4.8	675	6.0	800
Protection Juneau, Fairbanks	4.9	546	6.1	620	9.7	1,135
Lands Anchorage	4.0	934	16.1	1,825	20.0	2,530
Soils Juneau, Fairbanks	1.0	155	1.7	235	3.0	400
SY TOTAL	25.0		56.5		76.2	
M$ TOTAL		3,544		6,565		9,105

[1]Constant 1978 dollars
[2]Based on actual appropriation

Appendix A

RESEARCH NATURAL AREAS/ECOLOGICAL RESERVES

OVERVIEW

In accordance with current planning direction, a system of research natural areas/ecological reserves is to be established, based upon the need to protect and preserve for study special ecological- and geological-type sites that are representative of the natural diversity of Alaska's National Forests. The establishment of these sites is a part of a larger cooperative effort by several resource management agencies in Alaska to establish both undisturbed study sites (research natural areas) as well as sites reserved for use in studies that may modify the environment. While sites of both types are included in ecological reserves, research natural areas are of primary concern in Forest planning. The establishment of research natural areas therefore will be based upon discrete plant communities, geological features of scientific interest, and a limited set of animal species occurrences.

Plant communities are natural landscape components, and they represent discrete assemblages of plants that occur only where the environmental requirements of all the member species are met. Plant community classification work in Alaska has been limited; the principal accomplishment has been the development of a hierarchical system by Viereck and Dyrness. This system was published in 1980 as Forest Service General Technical Report PNW-106.

There are five levels in the Viereck and Dyrness system. For Southeast Alaska, there is sufficient information to define type needs at the lowest level (Level V) in the system. For Southcentral Alaska, there are practically no field-based studies in the literature; therefore, research natural area needs will be identified under Level IV communities, supplemented with estimates of Level V communities based upon the known ranges of plant species involved. Additional needs will be defined on the basis of the distributions and habitat preferences of selected shrub species in both Southeast and Southcentral Alaska.

Geologic features are another major element of natural diversity that will guide the selection of research natural areas. These areas are chosen for features that are of particular scientific interest, as evidenced by research activity in the past or on similar features elsewhere; the pervasive and continuing influence the feature has on the local environment; the potential the feature has for explaining or illustrating geologic forces or history; and the rarity or uniqueness of the feature.

Alaska has exceptionally diverse geologic features, especially in the south coastal portion. Nearly every type of bedrock and many landforms can be found in Southeast Alaska. Southcentral Alaska is particularly dynamic. Great earthquakes and other earth movements cause its shoreline to change, often dramatically. Southcentral Alaska is also one of the great areas of

glacial ice in the world; many types of glaciers are found there. Some kinds, especially tidewater glaciers, occur nowhere else in the National Forest System.

Animal species, because they are typically wide-ranging, are the hardest type of natural feature for which to define research natural area needs. Most often, a substantial portion of the habitat needs of the animals that occur on a research natural area are met outside its boundaries. As a result, even though there will be many animals of scientific and educational interest found on National Forest research natural areas, only a limited set of animal species occurrences will guide the selection of areas. These represent occurrences that are of particular research interest or which otherwise would be missing from the network of established areas.

There are now 22 research natural areas/ecological reserves that have been established in Alaska. Eight of these are located on the Tongass National Forest. (See Table A-1.)

Table A-1

Formally Established Units of the Alaska Ecological Reserves System

	Name of Area	Managing Agency	Location
1.	Agattu Island Research Natural Area	USFWS	Aleutian Islands
2.	Andrew Simon Research Natural Area	USFWS	Kenai Wildlife Refuge
3.	Bedlam Lake Research Natural Area	USFWS	Kenai Wildlife Refuge
4.	Bottinentnin Research Natural Area	USFWS	Kenai Wildlife Refuge
5.	Buldir Island Research Area	USFWS	Aleutian Islands
6.	Cape Fanshaw Research Natural Area	USFS	Stikine Area, Tongass National Forest
7.	Dog Island Research Natural Area	USFS	Ketchikan Area, Tongass National Forest
8.	Firth River-Mancha Creek Research Natural Area	USFS	Arctic Wildlife Refuge
9.	Halibut Cove Research Natural Area	BLM	South of Seward
10.	Limestone Inlet Research Natural Area	USFS	Chatham Area, Tongass National Forest
11.	Mount Glotoff Research Natural Area	USFWS	Kodiak Island
12.	Nikolai Bay Research Natural Area	USFWS	Kenai Wildlife Refuge
13.	Old Tom Creek Research Natural Area	USFS	Stikine Area, Tongass National Forest
14.	Pack Creek Research Natural Area	USFS	Admiralty Island National Monument
15.	Red River Research Natural Area	USFS	Misty Fiords National Monument
16.	Shublik Research Natural Area	USFWS	Arctic Wildlife Refuge
17.	Skilak Lake Research Natural Area	USFWS	Kenai Wildlife Refuge
18.	Bonanza Creek Experimental Forest	DNR-USFS	West of Fairbanks
19.	Caribou-Poker Creeks Research Watershed	DNR-BLM	East of Fairbanks
20.	Maybeso Experimental Forest	USFS	Ketchikan Area, Tongass National Forest
21.	Young Bay Experimental Forest	USFS	Admiralty Island National Monument
22.	Washington Creek Fire Ecology Research Area	BLM	North of Fairbanks

Future research natural areas will be selected through the use of the following steps in the Forest planning process:

1. Compare features on existing research natural areas (see Table A-1) with the lists of type needs to determine those needs that are already fulfilled. In some cases, this will require better information on the natural features of the existing research natural areas than is available currently. A guidebook that documents the existing research natural areas and other ecological reserves in Alaska is under preparation and will assist in this effort. Coordination and cooperation with designated research representatives is required.

2. Identify priorities among the remaining unmet type needs. Several criteria can be used to establish these priorities. If the potential effect of management on a particular type need feature is of concern, then a high priority could be established for the feature. It should be remembered that the goal is to adequately represent the feature in order to be able to conduct research and educational activities, not to preserve large amounts of land. Other criteria for setting priorities would include scientific interest, need for baseline information, and opportunity for efficiencies in travel and logistics in field work at a site.

3. Combine remaining unmet type needs into estimated area needs. Each type need will not require a separate research natural area. Well-chosen candidate research natural areas will contain several type needs. Maximizing the number of natural features within a given area adds interest because diversity is itself a condition of scientific interest.

4. Initiate the search for these area needs on the Forest Service national monuments; these national monuments were established partly for scientific and educational purposes. When appropriate, research natural areas should be sited on these monuments, since the monuments represent the most compatible land-use allocation within Alaska National Forests for this purpose. Research natural areas proposed for the monuments will be carefully selected in accordance with planned type needs and research needs in consonance with the monuments' scientific purposes.

5. If the feature or area need is unavailable in a monument, then enlarge the search to wilderness areas, wilderness study areas, or other withdrawn lands. If a research natural area is to be established in any of these designated or withdrawn areas, then it should be reasonably accessible, which generally means no more than a 2-hour hike from the nearest permitted point of vehicle (boat or aircraft, in particular) access.

6. If the feature or area need cannot be met in a monument, wilderness, wilderness study area, or other withdrawn area, then broaden the search to National Forest land-use designations that involve no programmed resource management (LUD II or equivalent).

7. If the type need remains a priority and can not be met in any of the preceding land-use designations, then broaden the search to National Forest areas of programmed resource management (LUD III's and IV's in the Tongass Land Management Plan). Attempt to accommodate the need to the greatest extent possible in portions of the management unit that are unavailable for resource development and extraction because of multiple-use and environmental quality constraints.

8. After selection of candidate areas, National Forest and Research personnel will proceed with establishment review procedures leading to the designation of research natural areas as part of the Forest planning process.

PLANT COMMUNITY TYPE NEEDS

The plant communities listed in Tables A-2 and A-3 should be represented in the final network of research natural areas on Alaska's National Forests. Although numerous, most of these plant communities will be found in association with several others at any given site, and further inventory will indicate that several are already represented in existing research natural areas. However, if it can be demonstrated that no examples of a given type are within existing research natural areas, then a search for examples of the type should be conducted.

Plant community names are given at Level V of the Viereck-Dyrness system (General Technical Report PNW-108) for Southeast Alaska. These are listed in a 4 letter code made up of the first 2 letters of the genus and the first 2 letters of the species names (modified for redundancies). Since this information is not available for Southcentral Alaska, estimates of probable types or the setting of the Level IV type is indicated. These listings are organized into higher levels of the vegetation classification system for ease of reference and interpretation.

Table A-2

Plant Community Type Needs--Southeast

Level IV Plant Community	Level V Plant Communities
FOREST	
Closed Conifer Forest	
Sitka Spruce	1. Pisi/Opho-Rusp/Coca
Sitka spruce-western hemlock	2. Pisi-Tshe/Lyam/Sphg 3. Pisi-Tshe/Vaov-Vaal-Mefe 4. Pisi-Tshe/Moun-Titr/Mnim
Westerm hemlock-Sitka spruce (western redcedar)	5. Tshe-Pisi-(Thpl)/Lyam/Sphg 6. Tshe-Pisi-(Thpl)/Lyam/Sphg
Western hemlock-western redcedar	7. Tshe-Thpl/Vaov-Lyam
Mountain hemlock	8. Tsme/Vaov-Clpy
Western hemlock-mountain hemlock	9. Tshe-Tsme/Vaov-Vaal/Rupe/Rhlo
Silver fir	10. Abam-Tshe
Subalpine fir	11. Abla-Tsme
Open Conifer Forest	
Shore pine-western hemlock-(western redcedar-Alaska yellow-cedar)	12. Pico-Tshe-(Thpl-Chno)/Vaov-Vaal-Legr/Spsq
Sitka spruce	13. Pisi/Alsi/Caca 14. Pisi/Alte
Mountain hemlock	15. Tsme/Casp-Vaov-Facr
Conifer Woodland	
Shore pine-(Alaska yellow-cedar)	16. Pico-(Chno)/Emni-Legr/Capl/Spfu 17. Pico-(Chno)/Vaul/Trce/Spco-Spte 18. Pico-(Chno)/Cali-Eran/Spli-Sppa 19. Pico-(Chno)/Dran-Rhal/Spli-Spte 20. Pico/Kapo/Eran-Capl-Tooc-Facr/Spli-Spco 21. Pico/Cali-Caph-Ruar-Pldi/Sppa-Spre
Closed Deciduous Forest	
Red alder	22. Alru
Black cottonwood	23. Poti
Aspen	24. Potr/Vied/Libo 25. Potr/Salx/Aruv

Table A-2 (continued)

Plant Community Type Needs--Southeast

Level IV Plant Community	Level V Plant Communities
Open Deciduous Forest	
Aspen	26. Potr/Aruv
TUNDRA	
Crowberry	27. Emni-Cast-Phal-Vacc
	28. Emni-Capl-Cama/Clad
Ericaceous shrubs	29. Phal-Vacc-Cast-Emni
	30. Phal-Cast
	31. Phal-Cass-Vacc
	32. Came-Cast-Emni
	33. Phal-Came
Snowbed communities	34. Lupe-Phal-Cass
SHRUBLAND	
Alder	35. Alsi/Rusp
	36. Alte/Caca
HERBACEOUS	
Bluejoint-Herb	
Bluejoint-mixed herbs	37. Caca-Epan-Geer
	38. Caca-Epan-Hela-Ange
	39. Caca-Debe-Hela-Anlu
Herbs	
Mixed herbs	40. Poeg-Feru
Fireweed	41. Epan
Cow parsnip	42. Hela-Vevi-Setr
	43. Hela-Atfi-Anlu/Clsi/Caum-Cotr
Ferns	44. Atfi-Cyfr-Botr-Gydr
Elymus	
Coastal elymus	45. Elar

Table A-2 (continued)

Plant Community Type Needs--Southeast

Level IV Plant Community	Level V Plant Communities
Coastal elymus-herb	46. Elar-Hope-Mema
	47. Elar-Seps-Lama
	48. Elar-Lama-Poem
	49. Elar-Lisc-Anna
	50. Elar-Hela-Clsi
Dume elymus	51. Elar-Feru
	52. Elar-Lama-Scps-Anlu
	53. Elar-Pobo-Seps
Mesic Midgrass	
Hair-grass	54. Debe
Wet Sedge-Grass (freshwater)	
Sedge marsh	55. Caly
	56. Scva
	57. Cama
Saline Sedge-Grass (tidal marsh)	
Halophytic grass	58. Punu
	59. Pugr
Halophytic sedge	60. Caly
	61. Elpa
Halophytic herbs	62. Juar
AQUATIC VEGETATION	
Ponds and Lakes	
Emergent vegetation	63. Hivu
Streams	
Emergent Vegetation	64. Popa-Metr-Ctpa

Table A-3

Plant Community Type Needs--Southcentral

Level IV Plant Community	Estimated Level V Plant Community
FOREST	
Closed Coniferous Forest	
Sitka spruce	Alluvial flood plains and outer coastal fringe
Sitka spruce-western hemlock	Skunk cabbage, blueberry, and foam flower types
Western hemlock-sitka spruce	Blueberry and skunk cabbage types
Western hemlock-mountain hemlock	Low elevation type
Black spruce	Feathermoss and wild rose types
Black spruce-white spruce	Feathermoss type
White spruce	Viburnum, twinflower, and feathermoss types
White spruce-Sitka spruce hybrid	Kenai Peninsula area
Open Conifer Forest	
Sitka spruce-alder	Alluvial, moraine, and outwash sites
Mountain hemlock	High elevation type
White spruce	Birch shrub types
Black spruce	Cold, poorly drained sites
Closed Deciduous Forest	
Black cottonwood	Floodplain sites with rich soils
Balsam poplar	Floodplain sites with rich, relatively warm soils
Paper birch	Alder types especially
Aspen	Viburnum and bearberry types especially
Closed Mixed Forest	
Popular-spruce	Flood plain horsetail type
Open Mixed Forest	
Spruce-birch	Moss, alder, and lichen types

Table A-3 (continued)

Plant Community Type Needs--Southcentral

Level IV Plant Community	Estimated Level V Plant Community
TUNDRA	
Mesic Sedge-Grass	
Mesic sedge-herb meadow	Carex-geranium-lupine type
Alpine Herbaceous Tundra	
Alpine herbs	Luetkea and fauria types
Birch and Ericaceous Shrubs	
Crowberry	Cassiope, Vaccinium, and Carex types
Ericaceous shrubs	Mountain heather types especially
Open Mat and Cushion	
Snowbed	Luetkea type especially
Open lichen	Harsh, windblown, rocky sites
SHRUBLAND	
Closed Tall Shrub	
Willow	Feltleaf willow types especially
Alder	Sitka alder types especially
Open Low Shrub	
Mixed shrub-sphagnum	Sweetgale type
HERBACEOUS	
Bluejoint	
Bluejoint meadow	Pure and red fescue types
Bluejoint-Herb	
Bluejoint-fireweed	Naturally disturbed areas
Bluejoint-mixed herbs	Geranium and other types

Table A-3 (continued)

Plant Community Type Needs--Southcentral

Level IV Plant Community	Estimated Level V Plant Community
Bluejoint-Shrub	
Bluejoint-alder	May be a variant of type in Southwest Alaska
Herbs	
Fireweed	Naturally disturbed areas
Elymus	
Coastal elymus	Pure type
Coastal elymus-herb	Senecio and Lathyrus types especially
Mesic Midgrass	
Midgrass-herb	Tall and red fescue types especially
Wet Sedge-Grass (fresh water)	
Sedge marsh	Verification of type occurrences needed
Saline Sedge-Grass (tidal marsh)	
Halophytic grass	Puccinellia types
Halophytic sedge	Sheltered coastal sites
Halophytic herbs	Seaward of *Elymus arenarious* strip
AQUATIC VEGETATION	
Ponds and Lakes	
Floating and submerged	*Ranunculus, Potamogeton, and Nuphar* types especially
Emergent	*Hippuris* and *Cicuta* types especially
Streams	
Floating and submerged	Verification of type occurrences needed
Emergent	*Potentilla* type especially

SHRUB SPECIES TYPE NEEDS

Since plant community classification studies are far from complete in Alaska, shrub species have been selected that indicate additional diversity needing representation on Alaska's National Forests. The selection rationale is indicated for each species in Tables A-4 and A-5. Information on occurrence and ranges were derived from Agriculture Handbook Number 410, Alaska Trees and Shrubs.

Table A-4

Shrub Species Type Needs--Southeast

	Shrubs	Selection Rationale			
		Open Habitats	Restricted to Southern Southeast	Restricted to Haines Area	Indicator Species
1.	Myrica gale (sweet gale)	X			
2.	Sorbus scopulina (Greene mountain-ash)	X			
3.	Physocarpus capitatus (Pacific ninebark)	X	X		
4.	Crataegus douglasii (black hawthorn)	X	X		
5.	Spirea douglasii (douglas spirea)	X	X		
6.	Gaultheria shallon (Salal)		X		X
7.	Lonicera involucrata (bearberry honeysuckle)		X	X	
8.	Amelanchier florida (Pacific serviceberry)		X	X	
9.	Alnus tenuifolia (thinleaf alder)			X	
10.	Ribes hudsonianum (northern black currant)			X	
11.	Shepherdia canadensis (buffalo berry)			X	
12.	Arctostaphylos uva-ursi (bearberry)			X	X

Table A-4 (continued)

Shrub Species Type Needs--Southeast

Shrubs	Selection Rationale			
	Open Habitats	Restricted to Southern Southeast	Restricted to Haines Area	Indicator Species
13. Symphoricarpos albus (snowberry)			X	X
14. Acer glabrum var. douglasii (Douglas maple)				X
15. Ribes bracteosum (stink currant)				X
16. Ribes lacustre (swamp gooseberry)				X
17. Malus diversifolia (Oregon crab apple)				X
18. Rhododendron camtschaticum (Kamchatka rhododendron)				X

Table A-5

Shrub Species Type Needs--Southcentral

Shrubs	Selection Rationale			
	Local on Rocky or Sandy Habitats	Local on Coastal Habitats	Local Species on Kenai Peninsula	Local Species on Prince William Sound
1. Juniperus communis (common juniper)	X			
2. Juniperus horizontalis (creeping juniper)	X			
3. Salix hookeriana (hooker willow)		X		
4. Malus diversifolia (Oregon crab apple)		X		
5. Betula papyrifera var. kenaica (Kenai birch)			X	
6. Amelanchier florida (Pacific serviceberry)			X	
7. Rubus leucodermis (western black raspberry)			X	
8. Crataegus douglasii (black hawthorn)				X
9. Cladothamnus pyrolaeflorus (copperbush)			X	

GEOLOGIC-LANDFORM TYPE NEEDS

The following geologic features or landforms should be represented in the National Forest research natural areas of Alaska. Each would deserve a separate area if it were necessary, although many will be found in combination. Notes on the character of the occurrence being sought are given.

GEOLOGIC-LANDFORM TYPE NEEDS—SOUTHEAST

Hot Springs/Geothermal Features

Two kinds of hot springs should be represented. Both should contain at least some water that issues at a temperature well above 60° C, so that thermophyllic bacteria are supported. Blue-green algal mats should be represented in pools or stream segments in the 35° to 60° C temperature range. One hot spring system should be in the northern portion of southeast and one in the southern portion. If possible, one hot spring system should be high in sulfur (over 200 ppm sulfate) and the other relatively low (less than 100 ppm). Both sites should have several pools or springs. At least one site should have a pool or spring that issues under pressure.

Recent Lava Flow

A typical alkali-olivine basalt flow active in historical times (unaltered by glaciation) is needed. Both ropy and smooth pahoehoe lava and blocky ah ah lava should be represented. If possible, a vent area with cinders should be included to illustrate plant succession (especially of trees) on finer textured material. Charred tree remains and lichen fields also should be represented.

Quaternary Volcanic Vent

A Quaternary volcanic vent modified by glacial scour and deposition should be represented. It should be quiescent and covered with vegetation, and it should illustrate physiographic maturation processes including, if possible, differential erosion rates.

Lakes

The following lake types, identified by their primary geologic factor of origin, are needed:

1. Volcanic--A lake formed by the damming effect of flowing lava. A wetland complex of submerged and emergent aquatic vegetation should be present to illustrate sedimentation and infilling at the stream inlet.

2. Ice Block Kettle Hole--A lake or lakes formed by the melting of an ice block in glacial outwash terrain. Both steep and shallow shorelines should be present. The aquatic ecosystem should be oligotrophic or mesotrophic.

3. Slump Pond--A pond or small lake formed in the headward basin of a rotational block failure on a slope.

4. "Hanging" Cirque--A lake formed by glacial scouring of bedrock in a "hanging" glacial valley. The lake should be near the contemporary tree line in order to be neither essentially sterile nor greatly modified by vegetation and high rates of weathering.

5. Tectonic-Morainal Fiord--A lake at the head of a tectonically controlled and glacially scoured fiord with a terminal moraine serving as a dam. There should be little difference (no more than 100 m) in elevation between sea level and the lake surface level.

6. Valley Morainal--A lake in a valley with a well-developed branching drainage network dammed by a glacial moraine. The lake should be at low to moderate elevations and support at least moderately productive aquatic ecosystems.

Solution Pits

Pits formed by the acid groundwater dissolution of limestone or marble bedrock. If possible, a large emerging cold spring system or an underground segment of a river or stream should be included.

Active Dune System

An active coastal dune system with open unvegetated sand, deflation plain, sandspit, baymouth bar, and, if possible, dark sands. Some areas of vegetation-stabilized sand as well as an active, wind eroding margin should be present.

Restricted Circulation Bay

A bay with a tightly constricted opening to a strait or channel of the inner marine waters of the Alexander Archipelago. The system should illustrate increased tidal amplitudes caused by the restricted flow at the bay mouth.

Reversing Salt Chuck (Marine Falls)

A salt chuck or tidally driven waterfall. It should have, at least occasionally, cascading water on both flood and ebb tides.

Coastal Staircase Benches

A well-defined series of terraces and small cliffs formed by stillstands at different relative sea levels. A long unbroken sequence or one establishing a local chronology should be represented.

Open, Wave-Beaten Coast

A rocky, outer open Pacific coastline. The shoreline should have, if possible, a variety of landforms including cliffs, headlands, offshore rocks, and a gradually sloping terrace that has undergone marine transgression.

Isostatic Rebound

A shoreline undergoing rapid uplift from the release of the weight of glacial ice. Evidence of this movement in the form of altered stream and shoreline morphology should be present. An area on the north mainland not directly associated with the rapidly fluctuating Glacier Bay system is needed.

Small Glacial System

A small glacier on the north mainland. The glacier should be as self-contained as possible; it should be at moderate elevations and not have an extensive higher elevation gathering area.

Nunataks

Ice-free land surface within a glacier-covered landscape. The nunataks of the Juneau ice field should be represented. The nunataks should have some vegetative cover; if possible, these plants should indicate something about the migration of organisms during and since the Pleistocene.

Alpine Solifluction Lobe

Undetectably slow flow of water-saturated regolith downslope over frozen ground. If possible, vegetation indicators should be present.

High-Elevation Periglacial Phenomena

Frost wedging of rock, frost heaving, ice-free permafrost if it occurs. The area should be an expanse of high-elevation land representing more than an isolated summit.

Snow Avalanche Chute

A steep track that regularly experiences snow avalanches. Vegetation indicators, especially alders, should be present. Both high-elevation and low-elevation examples are needed.

Rotational Block Failure

A downward-slipping, coherent body of soil, rock, or regolith that moves along a curved surface of rupture. A slump basin and pond should be present.

Mass Wasting/Soil Creep

An area of undetectably slow downslope movement of soil and regolith. A low-elevation example that supports tilted trees and other indicators (in contrast to the alpine solifluction feature) is needed.

Active Fault Scarp

A slippage plane undergoing rapid tectonic displacement. Altered streamcourses and other indicators should be present.

Waterfalls/Plunge Pool System

A waterfall and a plunge pool system for a major stream or small river. If possible, "potholes" ground into bedrock at the base should be present; the falls should serve as a migratory barrier to anadromous fish.

SECONDARY TYPE NEEDS, GEOLOGIC BEDROCK TYPES— SOUTHEAST

Sedimentary Rocks

limestone (with and without chert inclusions)

sandstone (quartz, arkosic, and graywacke)

shale-mudstone

conglomerate

dolomite

evaporites (rock gypsum or others)

chert (inclusions in limestone)

coal (especially lignite)

Igneous Rocks

fine grained equivalent	coarse grained equivalent
basalt	gabbro
rhyolite	granite
andesite	diorite
phonolite	nepheline syenite

Metamorphic Rocks

Rock Type:

Faintly Foliated	Derived from:
hornfels	any fine-grained rock
marble	limestone or dolomite
amphibolite	basalt or gabbro
tactite	Limestone or dolomite--with epidote if possible

Well Foliated	Derived from:
chlorite schist	andesite or basalt
amphibole schist	basalt or gabbro
gneiss	granite, rhyolite, or diorite

GEOLOGIC-LANDFORM TYPE NEEDS—SOUTHCENTRAL

Tidewater Glacier Terminus-Catastrophic Retreat

A tidewater glacier withdrawing from its terminal moraine and with the potential to undergo catastrophic retreat from iceberg calving. The glacier should be in northern Prince William Sound. The current terminus should be the focus of interest now as the process of retreat or restabilization takes place. If the retreat does take place, then this former terminus will be of particular value for monitoring succession and landscape development; other features of interest in the retreating ice mass or its margin can be identified later.

Tidewater Glacier Terminus-Stable

A steeply sloping tidewater glacier emptying into deep water with little outwash sediment accumulation. Any location around Prince William Sound would be suitable.

Piedmont Glacier Terminus and Proglacial Lake

A lowland glacier spreading out to occupy coastal terrace topography, with a meltwater lake along a portion of the ice margin. Convoluted folds in the ice made visible by entrained debris should be present, or an ice-cored moraine with vegetation should be present on the surface.

Terminus of Thickening Valley Glacier

A simple valley glacier system increasing in thickness, in the Kenai Peninsula area. If possible, meltwater from the glacier, especially the flow at the base, should be discharged in a single stream outlet to allow

easy monitoring in mass balance studies. The glacier should be relatively safe to work on and near, and should have the potential for easy servicing of a long-term high-altitude climatic monitoring station.

Advancing Tidewater Glacier Terminus

A tidewater glacier that is pushing a cushion of morainal debris (subaquaeous) in front of it, allowing ice advance. The system should be poised for significant, steady, long-term advance. The terminus is the focus of interest, although features along the valley or fiord margins should be included also.

Small Glacial System on the Northeast ("rain shadow") Slope of the Eastern Chugach Mountains

A complete small glacier system with limited gathering area and low elevation terminus on the relatively dry northeastern slope of the Chugach Mountains. The Cordova Peak/Meteorite Mountain block of the Chugach Mountains is the most suitable location.

Braided Glacial Outwash River Floodplain

A braided river course actively aggrading from outwash debris being carried by glacial meltwater. The river floodplain segment should be relatively short, and should feed into a stabilized river system, the open ocean, or Prince William Sound.

Glacial Valley Sideslope Scree Fan

A lowland, well-vegetated accumulation of sorted frost-churned debris (coarsest material at the base) deposited along the margin of a U-shaped glacial valley.

Frost-Churned Highlands

An area undergoing active frost wedging and sorting of stony material and debris at moderate elevations on the Kenai Peninsula. A relatively broad and level expanse of upland, with material being funnelled into a sideslope scree channel, should be included.

Sideslope Glacial Outwash Alluvial Fan

A fan-shaped alluvial deposit along the lower sideslope of a glacial valley. The fan should be at the outlet of a side drainage at the break in stream gradient. Some sorted material should be present, with the coarser material higher up and the finer textured material transported to the lower portion of the fan.

Breakwater Sandbars

Offshore shifting sandbars in the Bering River/Copper River delta region.

Small Islands and Rocks in Prince William Sound

Small islands and rocky islets illustrating coastal erosion-deposition activity on at least two contrasting bedrock types or geologic substrates.

Outer Gulf Coastline

Wave-beaten coast with a segment of rocky beach along the outer Gulf of Alaska coast at the Prince William Sound approach.

Coastal Tectonic Uplift

An area where sub- or intertidal sediment was uplifted several meters in the 1964 earthquake. The area should be above high tide and undergoing plant colonization and geomorphic change.

Lakes

The following lake types are needed:

1. Shoreline of Major Valley Morainal Lake--The shoreline of a major low-elevation valley morainal lake with a well-vegetated shoreline (primarily forest).

2. Alpine Lake--A small, glacially scoured lake basin above the tree line.

PROVISIONAL ANIMAL SPECIES TYPE NEEDS

National Forest research natural areas in Alaska should contain the animal species listed in Tables A-6 and A-7. Although revisions are to be expected in the lists of all the type need features as knowledge improves, animal species occurrences are the most incomplete. When further information about occurrence and abundance of certain animal groups (for example, songbirds) is available, then further listings might be appropriate. The general nature of the occurrence being sought is indicated.

Table A-6

Provisional Animal Species Occurrence Needs--Southeast

A. BIRDS	
Bald Eagle *Haliaeetus leucocephalus*	Representative shoreline segment with active nests
Peregrine Falcon, Peale's *Falco peregrinus pealei*	Nesting and resting cliff
B. MAMMALS	
Bushy-tailed Woodrat *Neotoma cinera*	Foraging and den habitat near talus
Prince of Wales Otter *Lutra mira*	Den on a tidewater bank under an old-growth tree
Northern Sea Lion *Eumetopias jubata*	Hauling out grounds and birth site, rocky beach above tide
C. FISH	
White Sturgeon *Acipenser transmontanus*	Spawning stream
Northern Pike *Esox lucius*	Disjunct occurence in freshwater lake
D. REPTILES	
Common Gartersnake *Thamnophis sirtailis*	Typical habitat--rocks or logs near marsh, ponds, or grass

Table A-7

Provisional Animal Species Occurrence Needs--Southcentral

A. BIRDS	
Trumpeter Swan *Olor buccinator*	Pond and lake breeding habitat
Dusky Canada Goose *Branta canadensis occidentalis*	Nesting and breeding habitat
Bald Eagle *Haliaeetus leucocephalus*	Typical segment of shoreline habitat with nest trees
Peregrine Falcon, Peale's *Falco peregrinus pealei*	Nesting and resting cliff
B. MAMMALS	
Northern Sea Lion *Eumetopias jubatus*	Hauling out grounds and birth site, rocky beach above tide
Sea Otter *Enhydra lutris*	Storm shelter above tide; especially gravel beaches and spits

Appendix B
SUMMARY OF LEGAL AUTHORITY

The establishment and management of National Forests are based on legislation passed by Congress. More than 140 Federal laws define various Forest Service authorities. A summary of each of the major laws is given here.

FEDERAL LAWS

The Organic Administration Act of 1897. This act provided for protection, management, and use of forest reserves from the Department of the Interior to the Department of Agriculture. An act on March 4, 1907, renamed the forest reserves National Forests.

The Antiquities Act of 1906. This act provided for the protection of historical or prehistorical remains, or any object of antiquity, on Federal lands; established criminal sanctions for unauthorized destruction or appropriation of antiquities; and authorized scientific investigation of antiquities on Federal lands, subject to permit and regulations.

The Weeks Law of March 1, 1911. This act authorized the purchase of lands for timber production and regulation of the flow of navigable streams. Most of the National Forests in the South and East were established under the Weeks Law. This act also provided for a program of Federal/State cooperation in fire protection.

The Historic Sites, Buildings and Antiquities Act of 1935. This act authorized the establishment of national historic sites and otherwise authorized the preservation of properties of national historic or archaeological significance; authorized the designation of national historic landmarks; established criminal sanctions for violation of regulations pursuant to the act; authorized interagency, intergovernmental, and interdisciplinary efforts for the preservation of cultural resources; and other provisions.

The Multiple-Use Sustained-Yield Act of 1960. This act confirmed long-standing Forest Service policy to administer the National Forests for outdoor recreation, range, timber, watershed, wildlife, and fish purposes. It emphasized that consideration be given to relative values of resources in particular areas.

The Wilderness Act of September 3, 1964. This act, as amended January 3, 1975, declared the policy of Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness.

The Land and Water Conservation Fund Act of September 3, 1964. This act was enacted to preserve, develop, and ensure accessibility to the quality and quantity of outdoor recreation resources that may be available and are

necessary and desirable for individual active participation to strengthen the health and vitality of the citizens of the United States.

The Historic Preservation Act of 1966. This act created the National Register of Historic Places; authorized funds for the acquisition and preservation of cultural resources; and established the Advisory Council on Historic Preservation.

The National Environmental Policy Act of 1969. This act declared a national policy to encourage productive and enjoyable harmony between man and his environment. It provided a continuing policy for the Federal Government to cooperate with State and local governments and other concerned public agencies to promote the general welfare and to achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities. This act mandated the use of a systematic and interdisciplinary approach to planning and making decisions.

Executive Order 11593. "Protection and Enhancement of the Cultural Environment, May 13, 1971," stated that the Federal Government shall provide leadership in preserving, restoring, and maintaining the historical and cultural environment of the Nation; directed Federal agencies to ensure the preservation of cultural resources in Federal ownership and instituted procedures to ensure that Federal plans and programs contribute to the preservation and enhancement of nonfederally-owned sites, structures, and objects of historical, architectural, or archaeological significance.

The Coastal Zone Management Act of 1972. This act, as amended in 1976, declared a national policy and developed a national program "for the management, beneficial use, protection, and development of the land and water resources of the Nation's coastal zones . . ." The act requires Federal actions that directly affect the coastal zone should be undertaken in a manner consistent to the maximum extent practicable with State coastal management plans.

The Endangered Species Act of December 28, 1973. This act provided a means to conserve ecosystems upon which endangered wildlife and plant species depend and to provide a program for the conservation of endangered and threatened species. The purpose of existing treaties and conventions was also emphasized by the act.

The Forest and Rangeland Renewable Resources Planning Act of 1974. This act provided an orderly framework for assessing the supply of, and demand for, the Nation's forest and related resources. It also provided for the development of long-range plans to ensure that the American people enjoy adequate supplies of water, recreation, forage, timber, and wildlife from the National Forest System and private forest lands in the decades ahead.

The Sikes Act of October 18, 1974. This act provided for conservation and rehabilitation of wildlife on certain public lands including the National Forests. The act provided for the cooperative development, with the States, of comprehensive plans for conservation and rehabilitation of wildlife, fish, and game.

The National Forest Management Act of 1976. This act amended both the Organic Act of 1897, and major sections of the Forest and Rangeland Renewable Resources Planning Act of 1974. Among other things, the provisions of the act clarified how certain forestry practices will be carried out and strengthened the definition of planning procedure.

The Federal Land Policy and Management Act of 1976. This act called for a periodic and systematic inventory of public lands and their resources for present and future use through land management planning, with coordination among Federal and State agencies. This act provided for preservation and protection of certain public lands in their natural condition; for food and habitat for fish, wildlife, and domestic animals; and for outdoor recreation and human occupancy and use. The law also dealt with acquisition, administration, and disposition of public lands.

The Clean Water Act of 1977. This act amended the Federal Water Pollution Control Act of 1972. The objective of this law is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Of particular note are the sections regarding Federal compliance with State procedural requirements; development of State plans to identify and establish methods to control, to the extent feasible, non-point source pollution; and the disposal of dredge and fill materials.

Clean Air Act of 1977. This act amended the Clear Air Act of 1963 (and subsequent amendments). The act provides for the establishement of primary and secondary standards for major air pollutants. Section 107 of the act directs each State to develop a plan to provide for implementation, maintenance, and enforcement of these standards. Three class areas were established to prevent significant deterioration of air quality in order to protect public health and welfare throughout the Nation and to preserve, protect, and enhance air quality in national parks, monuments, wilderness areas, and seashores.

Executive Order 12088. "Federal Compliance With Pollution Control Standards, October 13, 1978," prescribes Federal policy on control of water pollution from Federal properties, facilities, and activities; and requires substantive and procedural compliance with Federal, State, and local standards and limitations, including State water quality standards and effluent limitations.

The Cooperative Forestry Assistance Act of 1978. This act directed the Secretary of Agriculture to work through and in cooperation with State Foresters in conducting Federal forestry programs on non-Federal lands. These programs provide for advancement of forest resource management, encouragement of wood fiber production, prevention and control of insects and diseases, prevention and control of rural fires, efficiency of wood utilization, improvement and maintenance of wildlife and fish habitat, and urban forestry programs.

Joint Congressional Resolution on American Indian Religious Freedom of 1978 (P.L. 95-341). This act identifies the unique concerns of native people in relation to programs of prehistorical and historical cultural resources management. The resolution states the policy of the United States to

protect and preserve for American Indians their inherent freedom to believe, express, and exercise traditional religions, including, but not limited to, access to sites, use and possession of sacred objects, and the freedom of worship through ceremonials and traditional rites.

Archaeological Resources Protection Act of 1979 (P.L. 96-95). "The purpose of this act is to secure, for the present and future benefit of the American people, the protection of archaeological resources and sites that are on public lands and Indian lands, and to foster increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals having collections of archaeological resources and data that were obtained before the date of enactment of this act." The act augments the Antiquities Act of 1906 by providing clearer definitions of archaeological materials. It also provides for penalities for violations that are in line with current economics.

The Alaska National Interest Lands Conservation Act of 1980. This act, generally known as the Alaska Lands Act, established a number of conservation units in Alaska for the purpose of preserving them for the benefit, use, education, and inspiration of present and future generations of the Nation. It recognized the role these units will play in the satisfaction of economic and social needs of the State of Alaska and its people.

Executive Order 11988. "Floodplain Management, May 24, 1977," provided for floodplain management to reduce the risk of flood loss; to minimize the impacts of floods on human safety, health and welfare; and to restore and preserve the natural and beneficial values served by floodplains.

Executive Order 11990. "Protection of Wetlands, May 24, 1977," provided for Federal agencies to take action to minimize the loss, destruction, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.

STATE LAWS

Alaska Coastal Management Act of 1977. This act established the Alaska Coastal Management Program, which was federally approved in 1979. The Alaska Coastal Management Program includes standards and guidelines for the development of local coastal management programs and the conduct of activities in the coastal zone.

The State Forest Practices Act of 1978. Chapter 17 of State law AS-41, Forest Resources and Practices, requires the State Forester to act for the Commissioner of the Department of Natural Resources in using sound forest practices in the management of classified State Forest lands; in providing technical advice for the management of other State lands having renewable forest resources; in regulating operations on private lands; and in providing public information and assistance regarding forest practices and timber management generally. To assist in development, implementation, and administration of the regulations, the Governor has appointed a 14-member

Board of Forestry. The act applies to all forest land under State, municipal, or private ownership, and to forest land under Federal ownership to the extent permitted by Federal law.

Appendix C

FOREST SERVICE RESPONSE TO CONCERNS OF THE STATE OF ALASKA ON THE MANAGEMENT OF CONSERVATION SYSTEM UNITS

United States Department of Agriculture
Forest Service
Alaska Region
P.O. Box 1628
Juneau, AK 99802

Reply to: 1560

Date: SEP 14 1979

Mr. Sterling Eide
State CSU Coordinator
State of Alaska
Dept. of Fish and Game
333 Raspberry Road
Anchorage, Alaska 99502

Dear Mr. Eide:

In response to your letter of September 29, 1982, to Walt Sheridan, Forest Service ANILCA Coordinator, enclosed is our formal response to the State's "General Issues List for Conservation System Unit Planning" and the "Local Community Concerns" offered by the Department of Community and Regional Affairs.

Preparing this response gave us an excellent opportunity to consolidate and refine our policy on the management of Forest Service Conservation System Units. I regret that it has taken longer than I had intended.

I am available to discuss any of our positions further.

Sincerely,

for MICHAEL A. BARTON

JOHN A. SANDOR
Regional Forester

Enclosure

cc:

Vern Wiggins, Federal Cochairman, Alaska Land Use Council
Keith M. Schreiner, Regional Director, Fish and Wildlife Service
Curtis V. McVee, State Director, Bureau of Land Management
Roger J. Contor, Regional Director, National Park Service

GENERAL ISSUES LIST AND RESPONSES FOR CONSERVATION SYSTEM UNIT PLANNING

Access

Concern:

1. Conservation System Units in Alaska should be developed in a way that, within the scope of their enabling statutes and while retaining their unique qualities, makes them accessible to residents and out-of-State visitors.

Response:

1. We agree and feel that there is clear direction to this effect in the ANILCA legislative history. In addition, ANILCA has several "special" provisions that deal with access, specifically, Sections 811, 1110 and 1323(a). In developing plans for the management of Conservation System Units on National Forest System lands, the Forest Service does not plan on placing any restriction on access or uses, unless needed to protect values, to protect public health and safety, or as specifically required by ANILCA.

Concern:

2. The right to all reasonable access to inholdings (either private or State) must be protected, including such access across Conservation System Units required to develop State/private lands beyond the unit boundaries.

Response:

2. Access to inholdings will be granted in accordance with ANILCA Section 1323(a). Access for transportation and utility systems will be considered through provisions in ANILCA Title XI.

Concern:

3. The Federal agencies should maintain the opportunity for traditional means of public access, including roads, trails, and airstrips to utilize wildlife and fishery resources. Methods of transport, including the use of mechanized land and air transportation, should be maintained. Specific existing access sites and geographic areas with the potential to provide access should be identified by State and Federal agencies to serve existing and future public needs.

Response:

3. We agree that traditional access opportunities and methods need to be maintained and that future access needs should be anticipated. See Number 1 above. We are currently working with the Alaska Department of Transportation and Public Facilities to develop cooperative policies for meeting future transportation needs on the National Forests.

Concern:

4. Where appropriate, a system of trails, overnight cabins, and shelters should be seriously considered as a means of access into the interior areas of Conservation System Units.

Response:

4. Developing or expanding the trail system on units is considered compatible with wilderness management. The extent to which any trail system is increased by the Forest Service will depend upon the anticipated access needs and funds available. The only authority for establishment of new public use cabins is in ANILCA Section 1315(d), which allows for a limited number of new cabins if necessary to protect public health and safety. This determination will be made in the planning process. The State will be provided an opportunity to assist in identifying the need for and location of any new public use cabins.

Concern:

5. The Federal agencies are requested to allow the Alaska Department of Fish and Game access to all Conservation System Units for wildlife and fishery management or for research purposes.

Response:

5. The Alaska Department of Fish and Game will continue to have access to all lands within the National Forests of Alaska for wildlife and fishery management or for research purposes subject to requirements detailed in the Master Memorandum of Understanding dated July 6, 1981. Section 1310(b) of ANILCA states that new facilities for purposes including fisheries research and monitoring must observe mutually agreed upon conditions and terms to minimize adverse effects upon the unit.

Concern:

6. The Federal agencies are requested to allow the Alaska Department of Public Safety, Division of Fish and Wildlife Protection, and Alaska Department of Fish and Game access to all Conservation System Units for the purpose of enforcement of State regulations pertaining to the fish and game resources.

Response:

6. This is current Forest Service policy.

Concern:

7. Permitting procedures for any activities requiring access to Conservation System Units should be formally identified, standardized, and evenly administered.

Response:

7. The permitting process is consistent across all units within the National Forest System.

Concern:

8. The Federal agencies are requested to allow the Alaska Department of Natural Resources, Water Management Section, and the Alaska Department of Environmental Conservation access to all Conservation System Units for the purpose of research and the enforcement of water-related regulations.

Response:
8. This is current Forest Service policy.

The Forest Service and State and Federal agencies need to cooperate closely on inventory, monitoring, enforcement of regulations, and understanding functional relationships related to water quality, water quantity, turbidity, instream flow, and facilities. Several agreements have been established toward this end, such as the Master Agreement between the Forest Service and the U.S. Geological Survey (November 1982, renewed annually) and the Memorandum of Understanding between the Alaska Department of Environmental Conservation and the Forest Service (May 1980) "for the purpose of delineating and coordinating the responsibilities and activities to be performed by each agency pursuant to the Alaska Statewide Water Quality Plan." There is no formal agreement on water-related activities between the Forest Service and the Alaska Department of Natural Resources, Water Management Section.

Agreements with each agency may need to be reviewed and amended or developed to respond to the State's concern for facility development, coordination, access, and the legal requirements of ANILCA.

Facilities and Development

Concern:
1. Mineral development activities adjacent to Conservation System Units, particularly activities "upstream" of waters that flow through or adjacent to the units, should be reviewed to document instances of potential water-quality and quantity conflicts. Joint efforts should then be taken to avoid instances of potential conflict.

Response:
1. We agree. The Forest Service has consistently recognized the Alaska Department of Environmental Conservation water-quality standards in issuing management direction for resource activities on National Forest System land.

Concern:
2. The Federal agencies are requested to:

a) allow energy planning agencies access to proposed hydroelectric and other energy development sites for the acquisition of environmental, geotechnical, topographical, hydrologic, and other necessary data, subject to reasonable stipulations to minimize adverse impacts of such activities;

b) cooperate with the Federal Energy Regulatory Commission or other organizations in the preparation of environmental impact statements for hydroelectric and other energy developments located on or adjacent to Conservation System Units; and

c) cooperate with potential hydroelectric and other energy developers in the preparation and implementation of impact mitigation plans.

Response:

2. Energy planning agencies will be allowed access to energy development sites for data acquisition subject to reasonable environmental stipulations. The Forest Service will cooperate in preparing environmental impact statements and implementing mitigation measures.

Concern:

3. The Federal agencies are requested to locate developments in areas with the least detrimental impact to, or conflicts with, wildlife, fisheries, and water resources, regardless of ownership of the land affected by the development.

Response:

3. The impacts to all resources will be considered in the NEPA process when locating developments.

Concern:

4. Coordination between the Federal agencies and the Alaska Department of Environmental Conservation and the Alaska Department of Natural Resources, Water Management Section, is requested for any action taken both inside or adjacent to a Conservation System Unit that may relate to: control of turbidity and streamflow volume; both ground and surface water quality; waste disposal; waste treatment facilities; and withdrawals from, discharges to, or manipulation of streamflow. Such actions include: 1) construction or operation of administrative and visitor facilities, 2) development and maintenance of access to and within units, and 3) determination of instream flow requirements.

   The Alaska Department of Environmental Conservation and the Alaska Department of Natural Resources, Water Management Section, have particular concerns and responsibilities with any projects that relate to facilities construction or modification and specific developments, such as placer mining and hydroelectric development. The concerns include instream flow, surface water turbidity, water quality and quantity, and dam safety.

Response:

4. Compliance with State water-quality standards is Forest Service policy. Formal coordination with the State is guided by several cooperative policy statements. (See Access Number 8.) The Memorandum of Understanding with the State Clearinghouse will be updated this year. Currently, no agreement exists between the Forest Service and the Water Management Section of DNR. The Forest Service will work cooperatively with State agencies to review, amend, or develop joint policy statements as needed.

Concern:

5. Conservation System Unit developments and facilities, including concession operated facilities, should normally be contained within unit boundaries or on adjoining Federally owned and managed lands. Relying on the State of Alaska to provide land for or to manage these

facilities when they are oriented primarily towards visiting a Conservation System Unit, is not generally an acceptable policy to the State. Exceptions may be planned for through the drafting of specific cooperative agreements with private landowners or the State of Alaska.

Response:

5. Section 1306 of ANILCA addresses the establishment of administrative sites and visitor facilities for conservation areas in detail. This Section directs the Secretary to attempt to locate development of administrative sites and visitor facilities on Native land where practical and desirable. There is no policy or expectation that the State provide land or manage facilities related to the management of the National Forests. However, it is our policy to encourage private enterprise and to not compete with private endeavors.

Concern:

6. Generally, Conservation System Unit development or management activities should not result in adverse impacts on adjoining State, Native, or other private lands. Nor should these activities result in increased management responsibilities for adjoining landowners, except through cooperative management agreements.

Response:

6. Any proposed activities that might affect lands in other ownerships should be carefully coordinated with those owners and vice versa.

Concern:

7. The Federal agencies are requested to inform the Alaska Department of Fish and Game of proposed development activities on Conservation System Units that may affect fish and wildlife resources, subsistence, and other uses and to provide or require appropriate mitigation for development that negatively affects fish and wildlife.

Response:

7. The potential effects on all resources are considered in planning development activities, as required by NEPA. State agencies, as well as other public and private groups and individuals, will be kept informed and involved during the planning process. Proposals for activities that may have significant environmental or socioeconomic impacts must include provisions for mitigating irreversible or irretrievable effects.

Inholdings and Traditional Uses

Concern:

1. Rights to water, both instream and for development of any non-Federal land, shall not be obstructed or usurped by a Conservation System Unit.

Response:

1. Section 1319 of ANILCA provides that existing Federal and State laws and policies authorizing management of water resources are not altered by the Act.

Concern:
2. Unilateral restrictions on uses of waterways will not be acceptable.

Response:
2. Management of waterways on National Forest System land will be in accordance with applicable Federal and State law. As with all significant actions, opportunity for participation in the decisionmaking process will be provided to the State.

Concern:
3. Forest products needed for personal use on inholdings, or traditionally available from Conservation System Units prior to ANILCA, will continue to be readily available to meet these demands.

Response:
3. Timber will not be cut, sold, or harvested on units as part of the regular timber sale program. The following uses are authorized if done in a manner that minimizes impacts on wilderness:

   a. Salvage of beach logs with the temporary use of motorized or mechanical equipment where necessary, if permanent, long-term adverse effects will not result.

   b. Sale and removal of timber cut as a part of some authorized use within the wilderness, e.g., clearing for a fish hatchery.

   c. Fuel, shelter, or other subsistence uses if the individual does not have a suitable source equally accessible outside of wilderness.

   d. Cutting of trolling poles on an emergency basis by fishermen utilizing adjacent waters.

Concern:
4. If subsistence provisions of ANILCA are satisfied, the Boards of Fisheries and Game will define and regulate subsistence, its users, methods and means, and resolve conflicts and demands for fish and wildlife within Conservation System Units.

Response:
4. We agree.

Concern:
5. Traditional access routes through Conservation System Units to mineral exploration and development areas should be identified. Following identification of transportation corridors, plans to maintain these routes or to provide alternative corridors should be established.

Response:
5. Access to and across Conservation System Units will be accomplished through the process described in Title XI of ANILCA.

Concern:

6. The State of Alaska urges the Federal agencies to actively pursue modifications to Federal policies or regulations to allow customary, traditional, or other established uses, which are compatible with ANILCA objectives, to continue on Conservation System Units.

Response:

6. We agree and feel that there is clear direction to this effect in the ANILCA legislative history. In addition, ANILCA has several "special" provisions that deal with access, specifically, Sections 811, 1110, and 1323(a). In developing plans for the management of Conservation System Units on National Forest System lands, the Forest Service does not plan on placing any restriction on access or uses, unless needed to protect values, to protect public health and safety, or as specifically required by ANILCA.

Concern:

7. Uses of State/private lands within or adjacent to Conservation System Units shall not be limited or mandated as a result of unit plans or management, except as provided through cooperative agreements.

Response:

7. Except by cooperative agreement or other voluntary commitment, adjacent landowners are not limited or mandated by Forest Service plans or land management.

Concern:

8. The Federal agencies should recognize the importance of the commercial fishing industry to the State and Nation and should not limit the operation of buying, processing, or transportation facilities associated with commercial fisheries located within or adjacent to Conservation System Units, except when required by ANILCA.

Response:

8. The Forest Service recognizes the State's concerns and is cooperating with the State through the planning process referenced in ANILCA Section 507(a) for cooperative fisheries planning and further defined by ANILCA Section 1315.

Fisheries and Wildlife

Concern:

1. The Federal agencies are requested to recognize the Alaska Department of Fish and Game as the agency with the authority, jurisdiction, and responsibility to manage, control, and regulate subsistence, commercial, and recreational use of fish and wildlife on Conservation System Units in a manner consistent with ANILCA.

Response:

1. The Forest Service recognizes the authority of the State of Alaska to manage, control, and regulate the harvest of fish and wildlife on all National Forest System lands subject to applicable laws and cooperative agreements.

Concern:

2. The Federal agencies are requested to cooperate with the State in development and implementation of habitat management plans on Conservation System Units for the protection or improvement of habitat areas determined to be essential to the continued health and productivity of fish and wildlife populations.

Response:

2. Cooperation between the Forest Service and the Alaska Department of Fish and Game on population and habitat planning and management is addressed in the Master Memorandum of Understanding.

Concern:

3. The Federal agencies are requested to consult with and, when possible, involve the Alaska Department of Fish and Game in any treaty or international agreement negotiations affecting fish and wildlife in Alaska and to refrain from pursuing any treaties or international agreements that will result in decreased jurisdictional authority of the Department.

Response:

3. We agree, however, treaties are handled by the Department of State.

Concern:

4. The Federal agencies are requested to adopt by reference State of Alaska hunting, trapping, fishing, and access regulations to regulate use of fish and wildlife on Conservation System Units in Alaska, unless State regulations are found to be incompatible with ANILCA goals and objectives and such findings are provided in writing.

Response:

4. The Alaska Department of Fish and Game has the authority, jurisdiction, and responsibility to manage, control, and regulate the harvest of fish and wildlife populations on National Forest System lands. The Forest Service will cooperate with the State of Alaska in the enforcement of Alaska fish and game laws and regulations to the extent permitted by Federal laws and regulations and to report violations or suspected violations to the Alaska Department of Public Safety, Division of Fish and Wildlife Protection.

Concern:

5. Development of Conservation System Unit facilities, including access trails, campgrounds, and refuse disposal, will create and increase wildlife/human conflicts. The Alaska Boards of Fisheries and Game retain regulatory authority over fish and wildlife, and the regulations must be followed in each case related to resolution of these conflicts.

Response:

5. The Forest Service wishes to avoid unnecessary human/wildlife conflicts and is committed to working cooperatively with the State in sharing information, designing and implementing research projects, reviewing

plans and policies, and monitoring and evaluating CSU use to prevent incidents of this type. State regulations will be followed, except when incompatible with ANILCA goals and objectives.

Concern:

6. The State of Alaska's regulatory process should be used to the maximum extent possible to develop or modify regulations governing or affecting use of fish and wildlife on Conservation System Units in Alaska, unless Federal agency regulatory needs are beyond the legal authority of the State's regulatory bodies.

Response:

6. The Forest Service does not make regulations governing the use of fish and wildlife on National Forest System lands.

Concern:

7. The Federal agencies are requested to keep regulations to the minimum necessary to accomplish Conservation System Unit objectives not addressed by State regulations and to consult with the Alaska Department of Fish and Game prior to publication in the Federal Register of unit regulations affecting the management or use of any species of fish and wildlife in Alaska.

Response:

7. The Forest Service agrees that regulations should be kept to a minimum and that prepublication consultation with appropriate State agencies is desirable. The Alaska Land Use Council policy on regulation review is also appropriate to this concern.

Concern:

8. The Federal agencies are requested to develop Conservation System Unit management plans with provisions in substantial agreement with the State of Alaska's fish or wildlife management plans formally endorsed by the Alaska Boards of Fisheries and Game, unless the State's plans are formally determined to be incompatible with the purpose for which respective units were established.

Response:

8. Management direction for Conservation System Units will be in agreement with cooperative fisheries plans referenced by Section 507(a) of ANILCA. The State of Alaska is a participant in the development of these plans. State of Alaska Fish and Wildlife management plans will be a key factor in the development of CSU management plans. The degree to which they are incorporated into the final plan will be dependent on their compatibility with the purposes for which the unit is established and the management objectives development through the public planning process. The State is encouraged to take an active part in this process.

Concern:

9. The Federal agencies are requested to consult with the Alaska Department of Fish and Game regarding any proposed changes in policies that may affect the State's management of fish and wildlife in Alaska.

Response:

9. This is standard Forest Service policy. Refer to item A.5. of the Master MOU.

Concern:

10. The Federal agencies are requested to consult with the Alaska Department of Fish and Game during any development of Federal legislative proposals affecting fish and wildlife management in Alaska.

Response:

10. We agree.

Concern:

11. The Federal agencies are requested to cooperate with the State of Alaska in the collection, interpretation, and dissemination of research data, statistical data, banding and tagging records, population data, census information, harvest tabulations, and other use information for fish and wildlife on Conservation System Units.

Response:

11. This concern is covered by item C.5. of the Master MOU.

Concern:

12. The Federal agencies and the State of Alaska shall cooperate in the preparation of announcements and publications and the public dissemination of fish and wildlife information; any material obtained by either party or as a result of cooperative studies may be published or reproduced with proper credit given to the agency(ies) or organization(s) responsible for its acquisition or development.

Response:

12. We agree.

Concern:

13. The Federal agencies are requested to permit, under appropriate agreement or easement, the erection and maintenance of facilities or structures needed to further fish and wildlife management activities of the State of Alaska on Conservation System Units, provided their intended use is not in conflict with the purposes for which the areas were established.

    Facilities or structures required to support management activities may include, but are not limited to, cabins, tents, counting towers, weirs, docks, and transect enclosures. Management activities may include, but are not limited to, low level aerial surveys, boat surveys, foot

surveys, tagging or banding, preemergent fry sampling, collecting of specimens by use of nets, seines, spears, angling, tranquilizing, firearms, traps, and operation of hydrosonic equipment.

Response:

13. Facilities and structures supporting fish and wildlife management and research are permitted within Forest Service Conservation System Units when compatible with the purposes of the unit. Compatibility is determined through Section 1315 of ANILCA, the planning process for the unit, and the cooperative fisheries plan called for by Section 507(a) of ANILCA.

Concern:

14. The State of Alaska and Federal agencies may have projects of mutual concern and may wish to use each other's equipment and assistance as can be utilized in fish and wildlife work consistent with State and Federal agency needs.

Response:

14. In addition to the provisions listed in the Master MOU with the Department, the Forest Service will make Forest Service facilities and equipment available to the Department for appropriate fish and wildlife work consistent with Forest Service requirements.

Concern:

15. The opportunity to conduct aerial and ground surveys of fish and wildlife must be maintained and not restricted by a cumbersome permit requirement. The Federal agencies should recognize that the unpredictable limitations of migrations and weather frequently demand that these surveys be performed on a moment's notice.

Response:

15. There is no permit requirement for aerial survey. Permitting procedures must be followed in ground surveys only when facilities and structures are established. Exceptions to this policy, if any, will be identified through the planning process for each unit. Exceptions will be instituted only if necessary to protect the values for which the unit was established or to further management objectives developed through the planning process. As stated earlier, the State is encouraged to be an active participant in the planning process.

Concern:

16. The Federal agencies are requested to maintain the State of Alaska's opportunities for scientific sampling and investigations of fish and wildlife resources and their habitat.

Response:

16. We agree.

Concern:

17. The Federal agencies are requested to maintain the State of Alaska's opportunity for implementation of established fisheries enhancement techniques, including fertilization of rearing lakes; installation of fish ladders; and fish stocking, including operation of hatcheries.

Response:

17. The Forest Service, along with the State and Regional Aquaculture Associations, is participating in the cooperative fisheries planning called for by Section 507(a) of ANILCA, which will establish policy and priorities of fisheries enhancement techniques within all Conservation System Units.

Concern:

18. The Federal and State agencies should mutually establish guidelines for additional wilderness designations and for regulations of established wilderness areas on Federal lands and to exempt from wilderness designation proposals those areas where important Alaska rehabilitation programs are documented.

Response:

18. In accordance with Section 708 of ANILCA, on the Tongass National Forest, no additional wilderness evaluation may be conducted prior to revision of the Tongass Forest Plan. Wilderness evaluations on the Chugach National Forest are currently being completed as a part of the development of the Chugach Forest Plan. Direction for this evaluation is included in ANILCA Sections 704 and 708. Alternative opportunities for resource development, which would be precluded through wilderness designation, are key considerations in the evaluation process.

Concern:

19. Conservation System Unit program objectives should be achieved wherever possible without acquisition or reservation of additional lands. Where no feasible alternative to land acquisition exists for the protection of endangered or migratory species, the Federal agencies should consult with the State of Alaska prior to acquisition.

Response:

19. The Forest Service does not expect to acquire or request the designation of additional lands for any existing Conservation System Unit, unless the need for land exchange is identified through the planning process and conforms to the requirements of Section 1302 of ANILCA.

Concern:

20. At times, the Alaska Department of Fish and Game may wish to engage in active fish and game management on certain Conservation System Units, as part of management or research programs. These may include habitat improvement, animal control, and wildlife stocking.

Response:
20. This is covered by the Master MOU between the Department and the Forest Service. In general, activities of the type mentioned will be allowed to the extent permitted by law.

Concern:
21. The Federal agencies and the State of Alaska should cooperate in the development of fire management plans, which may include establishment of priorities for the control of wildfires and improvement of wildlife habitat by use of prescribed fires.

Response:
21. Fire management policies will be developed, if necessary, as part of the management direction for Conservation System Units.

Other

Concern:
1. Conservation System Units should be developed and managed to serve the broadest spectrum of unit users in a manner appropriate to the purposes for which the unit was established.

Response:
1. We agree.

Concern:
2. The Federal agencies are requested to consult with the State of Alaska prior to entering into any cooperative land management agreements with public or private landowners and accommodate, to the extent possible, the State's interests in any such agreement.

Response:
2. We anticipate that a substantial proportion of the cooperative land management agreements that we may enter into in the future will be related to implementation of the ANILCA Section 907 land bank provisions. State interests, such as access for fish and game management purposes, are by law to be included in any agreements executed under this authority. In addition, the Alaska Land Use Council is currently developing further guidelines for land bank agreements. The Council process may be useful for addressing additional State concerns.

Concern:
3. The cost of efforts by the State of Alaska to prevent fire or smoke intrusion into any Conservation System Unit must be borne by the Federal agency having jurisdiction over that unit, if prevention or suppression is demanded by the Federal agency.

Response:
3. State air-quality standards will apply to Forest Service units.

Concern:
4. The Federal agencies should continue to actively participate in cooperative interagency public information programs.

Response:
4. We agree within sound budgetary limits.

Concern:
5. Historic and archaeological resource inventories should be completed for each Conservation System Unit as an early part of the planning process.

Response:
5. Historic and archaeological resource inventories are needed much more in areas where development activities are being considered. It is our policy to schedule these inventories in locations where the proposed management activities might damage the resources if they are present.

Concern:
6. The State of Alaska will request boundary changes or status modifications to improve Conservation System Units for the management of wildlife, fisheries, and other resources.

Response:
6. Such requests will be reviewed within the intent of ANILCA.

Concern:
7. The Federal agencies are requested to pay particular attention to site-specific resource values (such as stream confluences). These are the sites that will draw the vast majority of visitors. They may require special management designations to ensure that they do not develop overuse problems, which impact much larger areas of Federal land.

Response:
7. This is normal procedure.

Concern:
8. The Federal agencies should form (or use existing) local citizen groups for each Conservation System Unit to deal with issues and concerns expressed by local residents. It is recognized that these local groups can only represent local concerns relating to management. However, organized local groups can be an effective means of communication between land managers and local area residents.

Response:
8. Public participation is an important part of all Forest Service land management planning. A citizens advisory group is but one means of scoping issues and resolving conflicts. This approach to public participation may be used by the Forest Service if it appears to be an

effective way to ensure broad public participation. Involvement of existing groups or groups formed in response to specific issues is welcomed and encouraged.

Additional Issues Specific to Wild and Scenic Rivers

Concern:
1. State issuance of recreational mining permits in designated wild and scenic rivers should be eliminated. This also applies to proposed wild and scenic rivers until designation is determined or the rivers are determined anadromous.

Response:
1. This is a State issue. We have no comment at this time.

Concern:
2. State enforcement of existing water quality statutes and regulations and Title 16 needs to be prioritized (funding and manpower).

Response:
2. This is a State issue. We have no comment at this time.

Concern:
3. Regulations should be enacted and enforced to cause existing and valid mining operations to upgrade their techniques to result in improved water quality.

Response:
3. There are no existing mining operations in the Situk Wild and Scenic River Study Area.

Concern:
4. Instream flow should be identified by the State, and minimum cubic feet per second should be determined for all wild and scenic rivers.

Response:
4. We have no objection to reservation of water by the State where appropriate and otherwise in accordance with law.

Concern:
5. When restrictions on numbers of recreational users are determined necessary for protecting a wild and scenic river, the restrictions should be designed on a case-by-case basis cooperatively with the State and managing Federal agency.

Response:
5. We agree.

Concern:

6. In addition to those issues already identified, there should be consideration toward enacting regulations that require placer miners or any others who partake in actions that disturb areas to restore those areas to levels that are aesthetically acceptable, while also providing usable wildlife habitat.

Response:

6. These concerns are, for the most part, adequately addressed by existing regulations. Provisions for restoration are included in any approved operating plan.

Local Community Concerns

Concern:

1. Federal agencies should not only consult with local citizens groups, but with city, tribal, and Native corporation officials as well. In many instances, city or tribal councils and corporation boards are the local citizens groups. In any case, all have important statutory authorities, which may have significant bearing on Conservation System Unit planning.

Response:

1. This is normal planning procedure.

Concern:

2. Federal agencies, in cooperation with the State, should devise a "community impact component" for the Conservation System Unit planning process, which would facilitate the measurement of potential impacts from Conservation System Unit management plans.

Response:

2. Impact to the community is an important consideration in formulating and evaluating various alternative planning policies. It is normal procedure to include it in the analysis.

Concern:

3. The Federal Government should address the potential for trespass in the Conservation System Unit planning process and recognize the tremendous impact that may fall upon communities as a result of trespass or poor trespass enforcement arising from affording access to new Federal units. Fire or other trespass activities, which threaten or destroy local property or wildlife habitat, are critical local concerns.

Response:

3. We agree. All public and agency issues and concerns will be carefully considered during the planning process for each unit.

Concern:

4. Care must be taken to ensure that management plans are developed jointly with local communities and, thus, are fully cognizant of community plans for improvement and expansion.

Response:

4. We agree.

Concern:

5. To the maximum extent possible, the Federal Government should utilize the services and facilities of local communities, if communities so desire, to meet the needs of Conservation System Unit administration, such as guiding, visitor accommodations, concessions, maintenance of trails, and related activities.

Response:

5. We agree.

Appendix D

THE ALASKA LANDS ACT AND FOREST SERVICE PROGRAMS

OVERVIEW

National Forest System lands and Forest Service programs in Alaska are affected in a variety of ways by the Alaska Lands Act (formally known as the Alaska National Interest Lands Conservation Act or ANILCA). The act also affects cooperative forestry efforts of the Forest Service's State and Private Forestry organization, as well as activities of the Forest Service Forest and Range Experiment Station.

Implementation of the act will be accomplished through a variety of Regional, Forest, and special planning processes.

Table D-1 displays the additions and land adjustments to National Forest System areas that resulted from the Alaska Lands Act.

Table D-1

Additions and Land Adjustments to National Forest System Areas as a Result of the Alaska Lands Act

Adjustment	Tongass National Forest	Chugach National Forest
Acreage Added by the Act	1,399,325 Acres	1,547,392 Acres
Total Acreage After Act	16,954,713 Acres Gross[1]	5,940,040 Acres Gross[1]
Wilderness Acreage Created	5,361,899 Acres[2]	None created
Wilderness Study Acreage	None created	2,019,000 Acres
Wild and Scenic River Study	Situk River[3]	None created

[1]The gross total acreage includes 57,000 acres that were removed from the Tongass National Forest and 97,000 acres that were removed from the Chugach National Forest. Other adjustments will be made for additional transfers of National Forest System land to Native corporations, the State, and the Fish and Wildlife Service.

[2]Final acreage may differ from these figures when official boundary maps are completed.

[3]The act provides for a study area extending out 2 miles from both banks of the river.

A summary of all provisions of the Alaska Lands Act (ANILCA) requiring Forest Service policy development, implementation, or coordination follows in Table D-2.

Table D-2

Status of Forest Service Implementation of Provisions of Alaska Lands Act (ANILCA) as of June 15, 1983

ANILCA Section	Description	Process	Status[1]
103(a)	Preparation of maps and legal descriptions for each change of land status resulting from enactment of the Act.	Included in this task is the mapping of ownership status and a determination of acreage. Mapping and description requirements also apply to locations where the National Forest boundary has changed.	C
		All Wilderness maps and legal descriptions have been completed and have been transmitted to Congress. Mapping for the National Forest additions has been completed as land status records are received.	C
501(b)	Special regulations on protection of fish and wildlife and their habitats in connection with multiple-use activities in the Copper/Bering/Rude River areas.	A draft regulation has been prepared by Chugach National Forest. Regulation currently undergoing internal review.	C
		Publish draft regulation in the Federal Register.	IP
502	Regulations as deemed appropriate on removal of leasable and nonleasable minerals from lands within the Copper River addition to the Chugach National Forest.	Existing law and regulation provides adequate authority for ensuring the level of resource protection called for in this section. Decisions on whether or not to permit removal of leasable or nonleasable minerals will be made on a case-by-case basis, based on a documented assessment of its compatibility with the management objectives established for the Copper/Bering/Rude Rivers area in section 501(b).	C
503(f) (2)(A)	Regulations in connection with the exercise of rights to valid mining claims within monuments. Must be coordinated with requirements of Sections 502, 504, & 505.	Issue Interim Directive through Forest Service Manual System.	C
		Publish draft regulations in the Federal Register.	IP
503	Misty Fiords and Admiralty National Monuments-- Requires additional validity determinations be made to determine status of claims. Must prepare analysis of U.S. Borax Mine Development concepts. Management plans for each national monument are being prepared. The draft plan for the Admiralty Island National Monument was released for public review and comment during May 1982. The draft plan for the Misty Fiords National Monument is scheduled for release in 1983.	Prepare EIS on Access Road and Bulk Sampling Plan.	C
		Analysis of mining concepts document	C
		Admiralty Island National Monument Management Plan - Draft	C
		Admiralty Island National Monument Management Plan - Final	IP
		Misty Fiords National Monument Management Plan - Draft	IP

[1] C = Complete; IP = In Progress

Table D-2 (continued)

ANILCA Section	Description	Process	Status
504	Unperfected mining claims in Misty Fiord and Admiralty Island National Monuments--Prepare and issue public notice of requirements. Process and issue permits and leases. Make validity determinations and studies related to leases. Issue exploration permits within 18 months of application.	Public notice of requirements	IP
		Time frames have been met. Validity determination for core claims are continuing to be processed in a timely fashion.	C
505(a)	Fisheries on National Forest System Lands in Alaska--Analyze the extent to which existing law and regulation provide adequate protection for fisheries habitat from degradation as a result of mining activities. Issue additional regulations as appropriate.	The review was conducted by an interagency task force consisting of representatives of the Alaska Departments of Fish and Game, Natural Resources, and Environmental Conservation. Federal representation was from the Forest Service, Fish and Wildlife Service, the Army Corps of Engineers, the Bureau of Indian Affairs, and the Environmental Protection Agency. After an intensive review of existing laws and regulations, the task force's conclusion is that the existing laws and regulations are fully adequate to provide the level of protection for fisheries resources required by ANILCA, as well as other laws.	C
		Publish task force conclusions in the Federal Register for public review and comment.	IP
505(b)	Ensure that mining operating plans provide an adequate level of protection for fisheries and other resources.	Interim direction has been issued to Forests to explicitly incorporate 505(b) considerations in all EAR's/EIS's.	C
		Incorporate interim direction into the Forest Service Directives System.	IP
506(a)(3)(E)	Cooperative Management with Kootznoowoo, Inc., of Mitchell, Kanalku, and Favorite Bays, and their immediate environs.	Process established as a part of the Admiralty Island Interim Guidelines. Environmental analysis and accompanying plan, which incorporates interim guidelines and a draft cooperative agreement with Kootznoowoo, Inc., is included as a part of the management plan for the Admiralty Island National Monument.	
		A separate unit plan for management of Mitchell Bay is also being developed.	IP
506(a)(5)	Provides that Kootznoowoo, Inc., may select 21,440 acres from VCU's 667, 678, 680, 681, 682, and that portion of VCU 679 outside the area of the Landcaster Cove-Kitkum Bay Timber Sale.	Selections have been made by Kootznoowoo, Inc. for approximately a quarter of their entitlement. Forest Service has identified easements to the Bureau of Land Management. Decision to convey has been issued by the Bureau of of Land Management on the selections to date. The balance of the the Kootznoowoo selections are expected in the near future.	IP

Table D-2 (continued)

ANILCA Section	Description	Process	Status
506(c)(2)	Provides for the identification of easements needed for public access to and utlization of National Forest System lands adjacent to lands conveyed by the Act to Goldbelt, Inc., and Shee Atika, Inc.		C
507	Cooperative fisheries planning--Implement a cooperative planning process for the enhancement of fisheries resources through fish hatchery and aquaculture facilities and activities in the Tongass National Forest.	Participate with the Alaska Department of Fish and Game and the Regional Fisheries Planning Teams in completion of long-term Regional Comprehensive Salmon Plans. Must be coordinated with Section 1315(b).	IP
	Report to Congress with each revision of Forest Plan.	Incorporate into Forest Plans in accordance with the National Forest Management Act process. Develop 5-year action plans in cooperation with the State and Regional Salmon Planning Teams.	IP
604(a)	Forest Service to study the Situk River in accordance with the Wild and Scenic Rivers Act, as amended. Report to Congress required.	Draft Report - Draft EIS released April 14.	C
		Final Report	IP
704	Designation of Wilderness Study Areas within National Forest System--Prepare a wilderness study of the Nellie Juan-College Fiord study area.	Study is being conducted as a separate, but integral, part of the Chugach Forest Plan.	
		Draft Forest Plan and Wilderness Study	C
		Final Plan and Wilderness Study	IP
705(a)	Funding to maintain Tongass timber supply, at least $40 million annually.	The President's budget for FY 84 includes $47,250,000 for this item.	IP
705(b)(1) and (2)	Establish a special program of insured or guaranteed loans to purchasers of National Forest materials in Alaska to assist such purchasers in the acquisition of equipment and the implementation of new technologies which lead to the utilization of wood products otherwise not utilized.	Implementation is planned for FY 84. Process established.	IP
705(c)	Prepare a study of opportunities (consistent with laws and regulations applicable to the management of the National Forests) to increase timber yields on National Forest System lands in Alaska.	A study plan has been developed covering the requirements for Sections 705(c) and 706(a), (b), and (c). The plan calls for a series of contracts with consultants, research information from the Pacific Northwest Forest and Range Experiment station, and in-house work. Contracts have been awarded for: 1. State-of-the art reviews of opportunities to increase timber yields. Included in this review are utilization standards, genetics, silvicultural practices, harvesting technology, and contract administration, among other items.	IP

Table D-2 (continued)

ANILCA Section	Description	Process	Status
		2. Development of a supply/demand model for Southeast Alaska. 3. Input/output model.	
706(a)	Monitor and report annually to Congress information on timber supply and demand in Southeast Alaska.	Reports #1 and #2 for years 1981 and 1982 are complete.	C,IP
706(b) and (c)	Review and report to Congress on the status of the Tongass National Forest. Report shall include: (1) the timber harvest levels since enactment of the Act; (2) the impact of wilderness designation on the timber, fishing, and tourism industry in Southeast Alaska; (3) measures instituted to protect fish and wildlife; and (4) the status of the Small Business Set Aside program in the Tongass National Forest.	Must be coordinated with requirements of Section 705(c) and 706(a), as well as with the Forest and Regional planning process. Study Plan	IP C
707	Administer lands designated as wilderness by the Act in accordance with applicable provisions of the Wilderness Act.	Direction - Manual Supplement to FSM 2320 Execution In addition, a workshop on Administration and Management of Wilderness was held in November 1981, to develop sample wilderness standards, guidelines, and monitoring programs for use in Forest Plans.	C IP C
Title VIII	Subsistence and Land-Use Decisions--Evaluate the effects of National Forest management on subsistence uses and alternatives to minimize adverse impacts.	Interim direction complete for incorporating Section 810 requirements into EAR/EIS process. Report to the U.S. Department of the Interior.	C IP
906(k)(2)	Establishment of an account into which 90 percent of receipts from lands selected by the State under Section 6 Entitlements of the Statehood Act will be held until conveyance.		C
907	Alaska Land Bank--Enchance the quantity and quality of Alaska's renewable resources and facilitate the coordinated management and protection of Federal, State, Native, and other private lands through participation in the Alaska Land Bank Program.	The Alaska Land Use Council has incorporated Section 907 implementation into the current ALUC Work Program.	IP
1008	U.S. Department of the Interior to conduct study of oil and gas potential. Report to Congress required. U.S. Department of the Interior has lead responsibility under the Act. Forest Service is cooperating in USDI process. U.S. Department of the Interior to report to Congress annually.	First report	C

Table D-2 (continued)

ANILCA Section	Description	Process	Status
1010	Alaska Mineral Resource Assessments--Cooperate with USDI in assessing the mineral potential on lands administered by the Forest Service. USDI to prepare and issue regulations to ensure that mineral explorationsare carried out in an environmentally safe manner.		IP
1104(b)(1)	Cooperate with the Secretary of Transportation in publishing a form to be used for applying for the approval of transportation or utility systems.	Notice of uniform Federal transporation and utility system application for use on conservation system lands in Alaska published in Federal Register, June 3, 1981.	C
1113	Stikine River Region--Study the effect of the Act on the ability of the government of Canada to obtain access in the Stikine River Region of Southeast Alaska. Report to Congress.	The Alaska Land Use Council has adopted this item as a current year work project assigning co-lead responsibility to the Forest Service and the Alaska Department of Transportation and Public Facilities.	IP
1201	Alaska Land Use Council--Participate in the establishment and operation of the Alaska Land Use Council.		IP
1202	Federal Coordination Committee--Participate in the establishment and operation of a Federal Coordination Committee.		IP
1303(b)	Administer provisions of the Act relating to construction, use, and occupancy of cabins and other structures on National Forest System land.	A Forest Service Manual Supplement (FSM 2320) has been developed to provide direction for administering the provisions of the Act related to construction, use, and occupancy of cabins and other structures on National Forest System land.	C
1305	Cooperative Information/Education Centers--Investigate and plan for development of a Cooperative Information/Education Center in either Juneau, Ketchikan, or Sitka, Alaska.	The Alaska Land Use Council has adopted this item into its work program assigning lead responsibility to the Forest Service. Current plans are to conduct the southeastern portion of the study during FY 83/84.	IP
1308(a) and (b)	Local Hire--Implement provisions of the Local Hire Program. Report to Congress on actions taken and additional legislation needed.	An interagency task force consisting of representatives of USDI agencies, the Forest Service, and the Office of Personnel Management has developed a set of policies and procedures for implementing this section of the Act. Program Implementation began during the FY 82 field season.	IP
1315(b)	Develop directions for construction with designated wilderness areas of permanent improvements and facilities such as fishways, fish weirs, fish ladders, fish hatcheries, spawning channels, stream clearance, egg planting, and other accepted means of maintaining, enhancing, and rehabilitating fisheries resources.	Is being coordinated with requirements of Sec. 507, 1303(b), and 1316, and has been incorporated into the supplement to FSM 2320.	C

Table D-2 (continued)

1315(e)	Modify existing timber sale contracts applying to lands designated by the Act as wilderness by substituting, to the extent practicable, timber on other lands approximately equal in volume, species, grade, and accessibility.	This provision applies to the two 50-year timber sales on the Tongass National Forest. Contracts have been modified to accomplish substitute provisions under life of sale plans.	C
1316	Develop and issue reasonable regulations, if required, for the establishment and use in wilderness areas of temporary campsites, tent platforms, shelters, and other temporary facilities and equipment directly and necessarily related to the taking of fish and wildlife where permitted by law or regulation. Must be coordinated with requirements of Secs. 1303(b) and 507.	The ALUC has developed and approved a set of definitions and policies for use of all agencies, both Federal and State, in implementing this section. Implementing direction has been incorporated into the supplement to FSM 2302.	C
1318	Provide advice, assistance, and technical expertise to Native corporations or Native groups in the preservation, display, and interpretation of cultural resources.		IP
		Implementing direction has been issued as a part of the Forest Service Directives System.	C
1411	Determine the amount of receipts deriving from activities on lands after withdrawal for Native selection and prior to conveyance. Such receipts are payable to the new landowner upon final conveyance of title to the land.		C
1428 1429 1430	The study required by Section 1430 was completed and transmitted by the President to Congress on December 8, 1981. Negotiations subsequent to completion of the study culminated in the signing of a final settlement agreement on January 7, 1983.		C

Appendix E

JOINT RESOLUTION BY BOARDS OF FISHERIES AND GAME

JAY S. HAMMOND, GOVERNOR

BOARD OF FISHERIES/BOARD OF GAME
DEPARTMENT OF FISH AND GAME

SUBPORT BUILDING
JUNEAU, ALASKA 99801

March 4, 1981

The Alaska Board of Fisheries and the Alaska Board of Game are responsible for regulating the harvest of Alaska's immense fisheries and wildlife resources. These regulations are implemented by the staff of the Alaska Department of Fish and Game.

At their December, 1980 joint meeting in Anchorage, the two Boards listened to four hours of presentations by the United States Forest Service and the Alaska Department of Fish and Game regarding a crucial Alaskan habitat issue: timber harvest in Southeast Alaska. Both presentations were followed by an extensive period of questions and answers regarding the impacts of clearcutting on fisheries and wildlife available for public harvest.

On behalf of the two Boards, I urge you to read the enclosed Resolution and give serious consideration to the issues it raises. If you have specific questions, I would be pleased to respond on behalf of the Boards. Dr. Ronald O. Skoog, Commissioner, will respond on behalf of the Department of Fish and Game.

DISTRIBUTION:

Governor Hammond
✓U.S. Forest Service-Regional and Washington, D.C.
Commissioner Skoog-ADF&G
Commissioner LeResche-DNR
USFWS Regional Director
Senator Ted Stevens
Senator Frank Murkowski
Representative Don Young
Secretary of Agriculture
All Alaska Legislators
Juneau Empire, Sitka Sentinel, Ketchikan News
All Southeast Alaska local Fish and Game Advisory Committees

Sincerely,

Greg Cook

Greg Cook
Executive Director
Boards of Fisheries and Game
(907) 465-4108

Enclosure: Joint Resolution #80-80-JB

BOARDS OF FISHERIES AND GAME
JOINT RESOLUTION #80-80-JB

CLEARCUT LOGGING IN SOUTHEAST ALASKA

WHEREAS, the Alaska Boards of Fisheries and Game are statutorily charged with the conservation and development of fish and game resources of the State and the Alaska Constitution mandates maintenance of fish and game populations on a sustained yield basis, and

WHEREAS, the U.S. Forest Service is committed to multiple use management through various federal acts and its own regulations, and

WHEREAS, the present forest management practice of clearcut logging throughout Southeast Alaska on a 90-125 year rotation is permanently converting diverse old growth stands with high fish and wildlife values to less diverse second growth stands of much less value to fish and wildlife, and

WHEREAS, past and projected timber harvest is concentrated in the higher volume stands of limited occurrence and current research has shown these stands to be highly important Sitka black-tailed deer winter habitat, and

WHEREAS, current scientific knowledge of other fish and wildlife species needs in relation to old growth forest is limited, yet indicates goats, marten, Vancouver Canada geese, bald eagles, salmonids and other species of fish and wildlife may be old growth dependent during some periods of the year, and

WHEREAS, the salmon commercial fisheries are one of the most valuable industries in Southeast Alaska and both subsistence and recreational use of fish and wildlife is highly important from both an economic and social standpoint, and

WHEREAS, the State Forest Practices Act, which regulates forest management activities on State and private lands, does not adequately address wildlife concerns,

Now therefore be it resolved by the Joint Boards of Fisheries and Game that:

1. The public be fully informed by the Department of Fish and Game and the U.S. Forest Service of the long term known and potential impacts of clearcut logging on fish and wildlife habitat and subsequent population levels.

2. The Tongass Land Management Plan be revised by the Forest Service to provide more protection for valuable fish and wildlife habitat and reflect recent research findings.

3. If information is not adequate to ensure the protection of fish and wildlife resources, then targeted timber outputs should be reduced by the Forest Service rather than risk permanent damage to these resources.

4. Research be expanded by both the Department of Fish and Game and the U. S. Forest Service to determine the effects of timber harvest on fish and wildife habitat requirements, and as new information becomes available, results be incorporated in the Forest Service planning process.

5. In all future timber harvests by the State and U. S. Forest Service, timber stands of more than 50,000 board feet per acre not be cut and other volume classes be cut only in proportion to their occurrence.

6. Multiple use management of all resources be maintained by the U. S. Forest Service on the remaining lands not withdrawn for wilderness management nor selected by Native Corporations.

7. Any assessment of resource values by the U. S. Forest Service include a full economic and social analysis of fish and wildlife resources and their human use.

8. Selective cutting with techiques such as balloon and helicopter logging be considered by the U. S. Forest Service as an alternative to clearcutting.

9. The State Forest Practices Act be amended to adequately address wildlife concerns.

10. Major islands or management units as proposed for the Forest Service Regional Plan, whichever are smaller, should be used by the U. S. Forest Service as the basis for individual forest management planning units.

Gordon Jensen
Chairman, Joint Boards of Fisheries & Game

Samuel J. Harbo, Jr.
Chairman, Board of Game

Nick Szabo
Chairman, Board of Fisheries

ADOPTED: Anchorage, Alaska
December 7, 1980

VOTE: Adopted, 14 to 0

Appendix F

REPORT TO THE BOARD OF GAME ON WILDLIFE AND FOREST PRACTICES IN SOUTHEAST ALASKA

JAY S. HAMMOND, GOVERNOR

DEPARTMENT OF FISH AND GAME
OFFICE OF THE COMMISSIONER
SUBPORT BUILDING
JUNEAU, ALASKA 99801

December 11, 1980

Mr. John A. Sandor
Regional Forester
U.S. Forest Service
Box 1628
Juneau, AK 99802

Dear John:

Enclosed for your information is a report prepared by our Game Division for the Board of Game on wildlife and forest practices in southeast Alaska.

Sincerely,

Ronald O. Skoog
Commissioner
(907) 465-4100

Enclosure

11-K11LH

REPORT TO THE BOARD OF GAME

ON

WILDLIFE AND FOREST PRACTICES

IN SOUTHEAST ALASKA

November, 1980

INTRODUCTION

The present forest management practice of clearcut logging throughout southeast Alaska on a rotational basis of 90-125 years is permanently converting old-growth, uneven-aged forests with high wildlife values to second-growth, even-aged stands of much less value to wildlife. Many species are affected by this conversion of ecosystems, but more data are available for Sitka black-tailed deer than for other species. Recent research suggests that present plans for 90 to 125 year rotational clearcutting will significantly reduce carrying capacity for deer on both public and private lands (Wallmo and Schoen 1980). Other research reveals that old-growth forest is important for some phases of the activities of other wildlife species including bald eagles (Robards and Hodges 1976), mountain goats (Schoen 1979), moose (Doerr et al. 1980), elk (Taber and Raedike 1980), marten (Koehler et al. 1975), brown bears (Mace, in press), Canada geese (Lebeda 1980), and several other birds (Kessler 1979, Luman and Neitro 1980). The structure and physical diversity of old-growth forest is especially important for maintaining diversity of wildlife populations.

The Alaska Department of Fish and Game, through the Commissioner, is charged by State Statute [Sec. 16.05.020(2)] to "manage, protect, maintain, improve, and extend the fish, game, and aquatic plant resources of the State in the interest

of the economy and general well-being of the State." Present and proposed forest management practices for Federal, State, and private lands in southeast Alaska may be a major deterrent to the Department in meeting these responsibilities. This must be resolved before wildlife habitat in southeast Alaska is irreversibly altered.

The public has not been adequately informed about the non-renewable nature of old-growth forest habitat and the permanent consequences to wildlife of the current forest management policy of converting climax old growth to managed second growth in southeast Alaska. In all future land planning in southeast Alaska, the non-renewability of the old-growth, climax forest must be evaluated relative to the requirements of multiple use management and maintaining inherent diversity.

BACKGROUND

The Tongass National Forest (the largest in the United States) contains more than 15 million land acres. Approximately 9.5 million acres are forested and 5 million acres are classified by the U.S. Forest Service as commercial forest land. The State of Alaska and regional and village Native corporations are entitled to select lands from the Tongass Forest. To date, the State of Alaska has selected approximately 140,000 acres and anticipates selecting another 50,000 to 100,000 acres. Native corporations are now making selections and will eventually gain title to 550,000 to 600,000 acres. Some of the higher volume timber stands occur on these selected lands, and a major use of the lands by Native corporations will be for timber harvest estimated at 225 to 400 MMBF per year (FLPMA Withdrawal DEIS). So, although land ownership will change over time the issues and concerns addressed in this paper apply to

all forested lands in southeast Alaska.

Forest Characteristics

Approximately 92 percent of southeast Alaska commercial forest land is classified as "old-growth" forest where, by Forest Service definition, the majority of trees exceed 150 years of age. The term "old growth", however, means different things to different people. To some it means a virgin or climax forest and to others a silviculturally mature forest. Unfortunately, this lack of clear understanding of what constitutes old-growth forest has created confusion among both laymen and professionals.

For interpreting wildlife ecology, old growth must be defined as uneven-aged, silviculturally overmature forest, with dominant trees exceeding 300 years of age. These stands are considered by most plant ecologists to be approaching or to have achieved a climax or steady-state condition of forest succession. To a timber manager, such a stand might be classified as decadent, with a relatively low rate of growth compared to younger, or even-aged stands. Although the rate of increase of wood-fiber production is low or constant in such old-growth stands, vigor of individual trees can still be quite high, with many trees having full, well-developed crowns, strong root systems, and tall, straight boles relatively free of decay. Others may be decadent, and when they die their place in the forest becomes occupied by herbs, shrubs, and young trees.

It is important to recognize that the above definition refers very broadly to the concept of old-growth forest presented here. The forest ecosystem in southeast Alaska is highly diverse, comprising a mosaic of different forest communities in a variety of topographic situations and geographical locations.

Factors such as slope, slope exposure, elevation, soil type, and drainage pattern affect the composition, productivity, and character of the forest stand. In addition to these relatively stable topographic and site differences, stand history involving such events as windthrow, landslides, insect infestations, disease, and fire greatly affects the overall diversity of the forest.

From the standpoint of providing wildlife habitat for the greatest number and diversity of indigenous species, old growth with its inherent fine-grained diversity is the optimum forest condition. The structure of old growth in a vertical direction is extremely complex, rising from a diverse understory plant community, to a shrub layer of woody browse plants of variable height, and on through a multi-layered tree canopy extending perhaps to 200 feet above the forest floor. Downed trees in various stages of decay on the forest floor, dead and decaying snags, arboreal lichens, and mistletoe infestations contribute to the vertical diversity of an old-growth stand.

Old-growth forest is also highly diverse in a horizontal plane. Site factors combined with stand history create an irregular pattern within the forest which often changes significantly from one acre to the next. In unmanaged forests, a wide range of stand ages occurs, from predominately uneven-aged stands many hundreds of years old, through even-aged stands or small patches several hundred years old, to recently established seedlings and saplings. Even-aged patches resulting from natural causes such as windthrow and landslides are scattered irregularly throughout uneven-aged stands. In the uneven-aged stands, individual trees range in age from one to a thousand years, and death of old trees and replacement by new trees is a continual process which provides for the greatest diversity of tree ages, diameters, heights, canopy layers, and understory conditions to be found in the forest. It is in old-growth, climax

forest that adequate time has allowed individual stands to fully respond to topographic and site characteristics and thus contribute to overall forest diversity. The high diversity characteristic of steady state or climax ecosystems has been discussed generally by Odum (1971) and more specifically for northern hardwood forests by Bormann and Likens (1979).

Even-aged silviculture on a 90 to 125 year rotation is the Tongass Forest timber management system and will probably also be followed on State and Native lands. The harvest method utilized is clearcutting. Following removal of the forest overstory, the site is left in a disturbed condition with variable amounts of forest residue or slash. The site is relatively unproductive in terms of shrub and herb development for 1 to 2 years following harvest. For a short period beyond this time, there is much new plant growth including forbs, ferns, shrubs, and conifer seedlings. Ten to fifteen years following cutting, conifers usually begin to dominate the site, and after 25 years most understory shrubs and forbs are shaded out, reducing plant diversity and biomass of wildlife forage. From this time to about 30 to 35 years post-logging, the site becomes totally dominated by conifers. Generally, in southeast Alaska, unmanaged second-growth stands are heavily overstocked. From stand age 40 to normal rotation, tree spacing increases as some trees die and other trees increase in size. Throughout this period the canopy remains essentially closed. In contrast to old-growth forest, even-aged, second-growth forests are comprised of trees of relatively uniform diameter, height, spacing, and canopy coverage. This dense, uniform canopy prevents much of the solar radiation from reaching the forest floor and thereby reduces the abundance of vascular plants. The structural diversity of the even-aged stand is also greatly reduced since the stand has not had time to achieve its full potential in relation to site characteristics. Harris (1974) and Harris and Farr (1979) present more on southeast Alaska forest succession.

Under intensive management, second-growth forests may be thinned occasionally, thus permitting a temporary development of shrubs and herbs. The major purpose of thinning, however, is to reduce competition and stimulate growth of the remaining trees, whose crowns soon fully occupy the canopy layer again. This results in virtually the same monomorphic habitat condition as prevailed before, the result of a silvicultural technique designed to increase timber production. Minimal habitat diversity occurs on the forest floor, in the canopy, and in between. Economics of thinning presently preclude its widespread use as a management technique.

The length of time required for an even-aged stand to develop into a climax condition has not been well documented. Some ecologists suggest that some stands may approach climax after 200 to 300 years or longer. The length of time probably varies with site conditions. However, once a stand is placed under the standard rotation (90 to 125 years) it will never again achieve the structural and ecological condition of old-growth or climax forest. The result is a significant and permanent reduction in ecological diversity, and conversion of valuable wildlife habitat to a successional stage of inferior value to many wildlife species. It is important to recognize that the value derived from the early clearcut stage is extremely short-lived relative to the sterile second-growth forest which dominates the rotation period. Furthermore, during the critical winter period in Alaska, deep snow often covers young clearcuts.

Wildlife-Commercial Forest Relationships

What are the relative values of clearcut, regrowth, and old-growth forest for each of the wildlife species indigenous to the coastal forest of the Tongass? How are individual species utilizing old-growth? What specific characteristics

of old-growth are most important to different species? Answers are still largely unknown. However, recent research, primarily on Admiralty and east Chichagof Islands, has provided specific insight into the habitat requirements of Sitka black-tailed deer (Leopold and Barrett 1972, Bloom 1978, Schoen 1978, Schoen et al. 1979, Barrett 1979, Wallmo and Schoen 1980).

Adverse winter conditions and avilibility of suitable winter habitat are the most important limiting factors on deer populations throughout most of southeast Alaska. Winter range is generally from sea level to 700 or 800 feet elevation and from the beach inland one-half mile, or more in some areas. Ongoing research indicates that preferred habitat within this range is characterized by uneven-aged stands of mixed hemlock and spruce, with trees being large, irregularly spaced, having well developed crowns with broken canopy, and with the understory characterized by an abundance of blueberry and herbaceous, evergreen plants. In such stands, the large trees with heavy crowns are strong and broad enough to intercept large amounts of snow. This allows deer greater freedom of movement and increases food availability. Variable tree spacing and crown structure characteristic of most uneven-aged, old-growth stands permit sufficient light to reach the forest floor so that an abundant forb/shrub plant community develops. In preferred deer winter range, this plant community is composed largely of bunchberry (Cornus), trailing bramble (Rubus), and blueberry (Vaccinium). In general, the higher volume, old-growth timber stands (30,000 board feet/acre and above) receive the most deer use during winter. This is attributable to their component of very large, old trees which accounts for the conditions described above. Such old-growth stands occur on the most productive forest sites.

The value of old-growth forest to wildlife is not unique to southeast Alaska. Other investigators have recently described the importance of old growth to deer

on Vancouver Island, British Columbia (Gates 1968; Jones 1974, 1975; Weger 1977; Bunnell 1979; Hebert 1979), to elk and deer in the Olympic National Forest in coastal Washington (Taber and Raedeke 1980a, 1980b), and to elk and several other forest birds and mammals in Oregon (Lumen and Neitro 1980).

Detailed knowledge of the available timber and past and projected timber harvest is necessary to accurately assess impacts on wildlife habitat. Timber in the Tongass has been inventoried by aerial photo-interpretation (Hutchison 1967, Hutchison and LaBau 1975). The most recent forest inventory, completed in conjunction with the Tongass Land Management Plan (USDA, Forest Service 1979), also included information on forest composition and land type. Such information, which describes the forested land in terms of successional stages, tree species composition, and volume classes, as well as identifying valuable wildlife habitats, is designed to enable forest managers to make the "best" use of the multiple resources.

Roughly 5 million acres of the 15 million acre Tongass National Forest are classified by the Forest Service as commercial quality forest land, or land capable of producing at least 20 cubic feet of wood volume per acre per year and having a net standing timber volume of 8,000 board feet per acre or more. Within this commercial forest land, stands are further classified according to size class or age. The vast majority of commercial forest land (approximately 92 percent) is classified as old-growth sawtimber, or stands over 150 years old. These old stands are recognized as having reached or passed silvicultural maturity. From a timber management standpoint, they must be harvested first to increase stand productivity for wood volume. The percentage of commercial forest land in the remaining size classes is relatively small and results

mainly from previous timber harvesting. The classes include young sawtimber, poletimber, seedling/ saplings, and recent unstocked cutovers.

As already discussed, this old-growth sawtimber class is an extremely diverse ecological community. Different forest types within this old-growth class are of varying importance to different wildlife species. Within the old-growth sawtimber classification, the forest inventory recognizes four different volume classes: (1) 8,000-20,000 bf/acre, (2) 20,000-30,000 bf/acre, (3) 30,000-50,000 bf/acre, and (4) over 50,000 bf/acre. The volume of an old-growth sawtimber stand is generally expressed in terms of the net board-foot volume of standing timber per acre. In commercial forest land this can range from 8,000 board feet per acre to over 100,000 board feet per acre. The character or nature of the forest community across this range varies dramatically and reflects site productivity. The distribution of old-growth forest acres among these classes is not even; the great bulk of acres is in the lower volume categories, reflecting low site productivity. Less that 11 percent of all commercial forest land (4 percent of the total Tongass Land acreage) occurs in the 30,000-50,000 bf/acre class, and less than 2 percent (0.6 percent of total land acreage) falls in the over 50,000 bf/acre class. Thus, while large acreages of forest habitat are available to wildlife, those species dependent on high-volume old growth occupy a relatively limited habitat - a habitat which is limited even more when additional constraints, such as a species' requirements for low-elevation timber and/or timber near saltwater, are considered.

Information on the past timber harvest trends permits an evaluation of the more recent man-caused changes in forest habitat in southeast Alaska. Annual harvest data (On file, USFS, Timber Management, Juneau) provide information on species composition and net scaled volume (scaled volume averages about 74 percent of

inventory volume) of timber harvested. The net scaled volume of timber cut on the Tongass is available by year from 1905 to the present, but data collected prior to 1948 are relatively incomplete. Information on specific locations and acreages of previous cuts is, unfortunately, quite limited.

Productive forest sites supporting high volumes per acre are usually more operable economically for timber harvest than those supporting low volumes per acre. In addition to the large volume contained in these stands, such stands typically contain sawlogs of the largest diameter and highest quality. Furthermore, stands of highest volume generally occur at lower elevations and close to tidewater - factors that make them highly desirable from a harvesting standpoint. An analysis of past timber harvest data suggests that the annual inventory volume harvested between 1956 and 1979 has averaged close to 50,000 board feet/acre. Considering that less than 2 percent of the commercial forest land is classified at 50,000 board feet/acre (inventory volume), this represents an extremely high proportion of high-volume timber. Furthermore, most of this high-volume timber has been cut from low elevations close to tidewater. This trend, if continued, will seriously affect wildlife dependent on these particular forest communities.

The Department of Fish and Game has addressed the question of desired levels of wildlife to be maintained on the Tongass Forest (Letter from R. Skoog to J. Sandor, November 28, 1978). The Department does not believe that determination of desired levels is a biologically sound way to manage wildlife resources on the Tongass. Rather, such management should be based upon the reasoned balance of habitat values present in the Forest. The Department's goal is to maintain the maximum numbers of wildlife that the existing habitat can support in an ecologically sound manner.

It is recognized, however, that logging will occur and that deer carrying capacity will be reduced and that other wildlife species dependent on these plant communities will be affected. Any consideration of desired levels by the Department and the Board of Game should include involvement of the public in Alaska and other states after they have been completely informed on wildlife-timber management relationships.

Data on timber volume and harvest and deer-forest relationships are presented graphically in the appendix.

Legislative and Policy Guidelines - Tongass Forest

Federal laws and management policy mandate multiple use of National Forest lands. Major legislation includes the Creative Act of 1891, the Multiple Use-Sustained Yield Act of 1960, the Forest and Rangeland Renewable Resources Planning Act of 1974, the National Forest Management Act of 1976, and the Federal Land Policy and Management Act of 1976. Current management policy on each of the National Forests reflects this legislation. Major policy and planning documents for the Tongass Forest include the Southeast Alaska Area Guide (1977), the Tongass Land Management Plan (1979), and the Regional Plan now in preparation, which will supercede the Area Guide.

A summary of the various Acts as they relate to wildlife will not be presented here. However, pertinent sections of the Southeast Alaska Area Guide will be cited. The Area Guide is a guide and policy document which summarizes legislative intent as it should be applied to management of the Tongass Forest. The Guide "describes the planning area, the public issues that the Guide strives to resolve, and the active machanisms for land and resource allocation. It also

describes the forest practice or coordination policies that need to be implemented in day-to-day resource management situations to ensure compatability between resource uses." The Guide states "This Guide carries more than just words; it also carries a commitment to a quality job of resource management. This commitment means that if funding is not adequate to ensure quality control for a targeted output, whether it be timber volume or acres of habitat enhancement, then the output will be reduced rather than risk sacrificing a quality job."

The Area Guide provides the public with major policy statements for each of the renewable resources. Several of the major statements concerning wildlife follow.

> "The Forest Service recognizes wildlife resources as a major component of the Tongass National Forest and the source of numerous important products, benefits, and services. Wildlife resources are to be considered no more or no less important than the other renewable resources of the National Forest."

> "Management decisions concerning wildlife habitat will be based on sufficient knowledge, information, and data to provide a sound basis for professional judgment."

> "The Forest Service recognizes the importance of wildlife habitats, and timber harvesting will be planned to protect or enhance that habitat. Habitat guides, which could protect or enhance the various species, will be jointly developed by the Forest Service and Alaska Department of Fish and Game. Existing information shall be utilized until such guides are prepared."

In 1979, regulations were adopted by the Forest Service for implementation of the National Forest Management Act of 1976 (Federal Register, Vol. 44, No. 181, 17 September 1979). Key points from these regulations (Forest Planning Actions, 36 CFR 219.12) follow.

> "(g) Fish and wildlife habitats will be managed to maintain viable populations of all existing native vertebrate species in the planning area and to maintain and improve habitat of management indicator species. To meet this goal, management planning for the fish and wildlife resource will meet the requirements set forth in paragraphs (1) through (7) of this paragraph and be guided by Chapter 2620, Forest Service Manual."

Management indicator species are defined in paragraphs (1) through (7) as:

> "Endangered and threatened plant and animal species...species with special habitat needs that may be influenced by planned management programs; species commonly hunted, fished, or trapped;..... Population trends of the management indicator species will be monitored and relationships to habitat changes determined."

These key points re-enforce some of the major policies found in the Area Guide.

In response to the Federal Land Policy and Management Act of 1976, the Tongass Land Management Plan (TLMP) was developed. TLMP is a 10-year allocation process whereby various portions of the forest are to be managed for different goals. The forest was divided into management units which were classified into four major land use designations (LUD). LUD's I and II, where timber harvesting is not

permitted, contain 8.1 million acres, of which 1.9 million acres are classified as commercial forest. LUD's III and IV, where cutting will occur, contain about 7 million acres, of which 3.1 million acres are commercial forest. In general, except for Admiralty Island, areas with the highest timber volumes are classified as LUD's III and IV. The high volume LUD III and IV timber areas also have high wildlife values. For the final Tongass Plan, retention factors or areas to be left uncut for wildlife and related values, were reduced to levels below those recommended by the interdisciplinary teams that drafted the plan. TLMP provides for an average annual allowable harvest of 450 million board feet of timber or approximately 18,000 acres a year. This is based on the industry's scaled volume and is equivalent to approximately 550 million board feet inventory volume.

The Tongass Land Management Plan (TLMP) designated 17 acres as basically wild erness, including Admiralty Island and Misty Fiords. These areas were subsequently proposed for wilderness designation through the Federal Roadless Area Review Evaluation II (RARE II) and in d-2 Alaska Lands bills. Wilderness classification is not necessary for wildlife, but it provides a better guarantee that habitat will not be altered than does non-wilderness classification. Other than Admiralty Island, much of southeast Alaska proposed as Wilderness is not highly productive land. Wildlife would benefit more if less glaciated and high mountain habitat and more forested habitat became Wilderness.

As of this writing (11/13/80), the Alaska Lands Bill had been passed by Congress and sent to the President for signature. The Bill mandates a timber harvest of four billion five hundred million board feet from the Tongass Forest over a 10-year period. It also provides to the Secretary of Agricultures at least $40 million annually or as much money as is necessary to attain this harvest.

Guidelines for State and Private Lands

The State Forest Practices Act provides for establishing acceptable methods of managing and harvesting forest resources on private, municipal, and State lands within Alaska. The Departments of Natural Resources and Environmental Quality are directed by the Act to develop regulations and "Best Management Practices." The Act is strongly orientated to water quality and anadromous fish, with little direct protection for wildlife on private lands.

According to Section 22 (k) of the Alaska Native Claims Settlement Act, timber harvest on Native lands will be managed for 10 years under the same guidelines for managing timber harvest on Forest Service land. This has been interpreted to mean for 10 years after the Act became effective, or 1982. The State Forest Management Act will apply after 1982.

CURRENT SITUATION AND ACTIONS TAKEN

The Alaska Department of Fish and Game considers habitat alteration from clearcut logging and its impact on wildlife one of the most serious problems it faces in southeast Alaska and is actively conducting research on wildlife-forest management relationships. A study of Sitka black-tailed deer in cooperation with the Forest Service Forestry Sciences Laboratory has been in progress since 1976. Mountain goat-forest relationships have been studied by the Department of Fish and Game and the Forest Sciences Laboratory in the Juneau area since 1976. Goat studies will terminate in the Juneau area and begin in southern southeast Alaska in 1980, and a new research position to conduct this study will be filled in the fall of 1980. Marten studies related primarily to effects of habitat changes will begin in 1980. The Department supported and is now continuing a study on Vancouver Canada geese, part of which defines habitat needs in forested areas. The Forest Service

Forestry Sciences Laboratory has supported studies on small mammal-forest relationships, forest succession and understory plant development, and effects on understory species of thinning second-growth stands. The need for research was emphasized by a recommendation of the Alaska Department of Fish and Game to the Alaska Council on Science and Technology. In March 1980, the Department stated that its greatest terrestrial wildlife research need statewide was studies of the effects of clearcut logging on wildlife habitat.

The Department is involved with management as well as research oriented activities. It provided representatives to the Wildlife Task Force and on the Interdisciplinary Team that made recommendations for the Tongass Land Management Plan. Department representatives have participated in the Interdiciplinary Team process which lays out cutting plans for timber sales. A new position created in the Game Division to deal exclusively with effects of timber harvest on wildlife was filled in August 1980.

The Department commented on the Draft Tongass Land Management Plan (TLMP) in August 1978. Briefly stated, Department comments were:

1. TLMP should be deferred until after passage of an Alaska Lands Bill.

2. TLMP should be deferred until a better data base is available for both timber volume and wildlife.

3. Economics of timber harvest as it affects guiding, trapping, and viewing of wildlife should be analyzed along with economics related to timber industry jobs.

4. Wildlife habitat ratings on which TLMP is based often do not reflect true

values. Ratings were based primarily on the number of species present rather than the importance of individual species or the value of areas to users. The major problem resulting is that mainland areas with more species were ranked on the same scale as the islands which have fewer total species but high wildlife values.

5. To attain a balanced resource allocation, Alternative D, or as a bottom line, Alternative C with some modification, were preferred alternatives. Alternative C was similar to the IDT alternative. Both alternatives were rejected for the final TLMP and a more intensive timber harvest plan adopted.

The Department and the State commented on the Draft Environmental Impact Statement for the 1981-86 Alaska Lumber and Pulp sale. A major concern was the lack of discussion regarding loss of old-growth forest as an ecosystem under present rotational cutting cycles. This was not adequately responded to in the Final Environmental Impact Statement. The Department pointed this out in its response to the Impact Statement and also stated that once the Forest Service acknowledges that the climax forest ecosystem is non-renewable under present rotational periods, it should then explain how this does not contravene the multiple use philosophy and requirements for diversity of the National Forest Management Act of 1976. The Department also made the point in comments on the 1981-86 Alaska Lumber and Pulp sale that the importance of the diverse climax forest ecosystem to wildlife is considered a key in providing for diversity of wildlife habitat.

The Department also developed a simulation model with timber volume, age class, past timber harvest, projected timber harvest, and deer habitat suitability ratings as the components. Used as a management/research tool, the model can provide insight on how different cutting plans might affect habitat suitability.

Action by the Alaska Chapter of the Wildlife Society emphasizes the seriousness of the consequences of present management practices to wildlife. In May 1979, this group of professional biologists, with members from most agencies managing wildlife and habitat in Alaska, and also from the University of Alaska, pointed out the non-renewability of old-growth forest, loss of diversity, and adverse effects of wildlife of present management practices; the need for additional biological and timber volume information; the need to determine if present forest management practices meet mandated multiple-use objectives; the need to defer more cutting of high-volume, old-growth forest, or at least, to cut it only in proportion to its occurrence; and the need to inform the public of irreversible consequences to wildlife resulting from present management practices. The Alaska Chapter of the Wildlife Society is also appealing the 1981-86 Alaska Lumber and Pulp Timber Sale on the basis that the impact statement for the sale is inadequate and that requirements of the National Forest Management Act and Alaska Area Guide are not being met. This action has also received the support of the Alaska Board of Game and the American Institute of Fisheries Research Biologists.

OPTIONS FOR CONSIDERATION

1. Completely inform the public of the long-term irreversible consequences to habitat and wildlife of present cutting plans. This should be through a concerted public communication effort by both the State and Forest Service. Forest managers should consider public response as timber and wildlife management plans are developed.

2. Expand research on wildlife-forest management relationships.

3. Continue and increase Department participation in the IDT process and in forest planning with more emphasis on timber sale layout. Establish a more formal mechanism for transmitting Department recommendations independent of the IDT process.

4. Review the State Forest Practices Act for possible revision so that it more adequately addresses wildlife concerns.

5. Establish a close working relationship between the Department and private land owners so they are aware of wildlife-logging relationships.

6. Consider permanently retaining remaining high-volume old growth of more than 50,000 board feet per acre for wildlife except by special exemption agreed to mutually by the Department and the Forest Service.

7. Consider cutting old growth of 30,000 to 50,000 board feet per acre only in proportion to its present occurrence for the next 10 years. Benefits to wildlife would be retention of high-value habitat. Adverse effects would be the increased acreage affected by cutting to obtain the same volume of timber. This cutting policy could be examined after 10 years and modifications considered.

8. Consider selective cutting with techniques not yet tried in Alaska such as balloon and helicopter logging as an alternative to clearcutting. Techniques as they are developed should be evaluated for their effects on wildlife.

9. Consider either major islands, because they are distinct units with major water barriers to colonization, or management units as proposed for Forest Service Regional Plans, whichever are smaller, as the basis for individual planning units.

10. Examine TLMP and consider possibility of revision based on the following:

a. Consistency with State responsibility to maintain wildlife on public lands and the related land owner responsibility to maintain wildlife habitat.

b. Consistency with the Natural Forest Management Act, the Alaska Area Guide, and other relevant legislation and guidelines.

c. Adequacy of rating system for wildlife habitat.

d. Adequacy of retention factors for wildlife.

e. Assumptions and calculations on amount and quality of winter deer range.

f. Adequacy of TLMP in light of new information.

10. Develop a method to give permanency to retention factors or areas left uncut for wildlife in LUD's III and IV.

11. Develop close cooperation between the Department and the Forest Service in developing the Forest Service Regional Plan. This plan should be compatible with the objectives and responsibilities of the Department and be designed so as to insure adherence to its policies in the day-to-day management of the Tongass Forest.

12. Maintaining present levels of employment in the timber industry in southeast Alaska, a stated objective of the State, should be examined relative to additional timber harvest from Native and State lands. As people are employed in industry resulting from timber harvest on Native and Stare lands, it may be possible to reduce cutting of National Forest lands and still retain the present level of employment.

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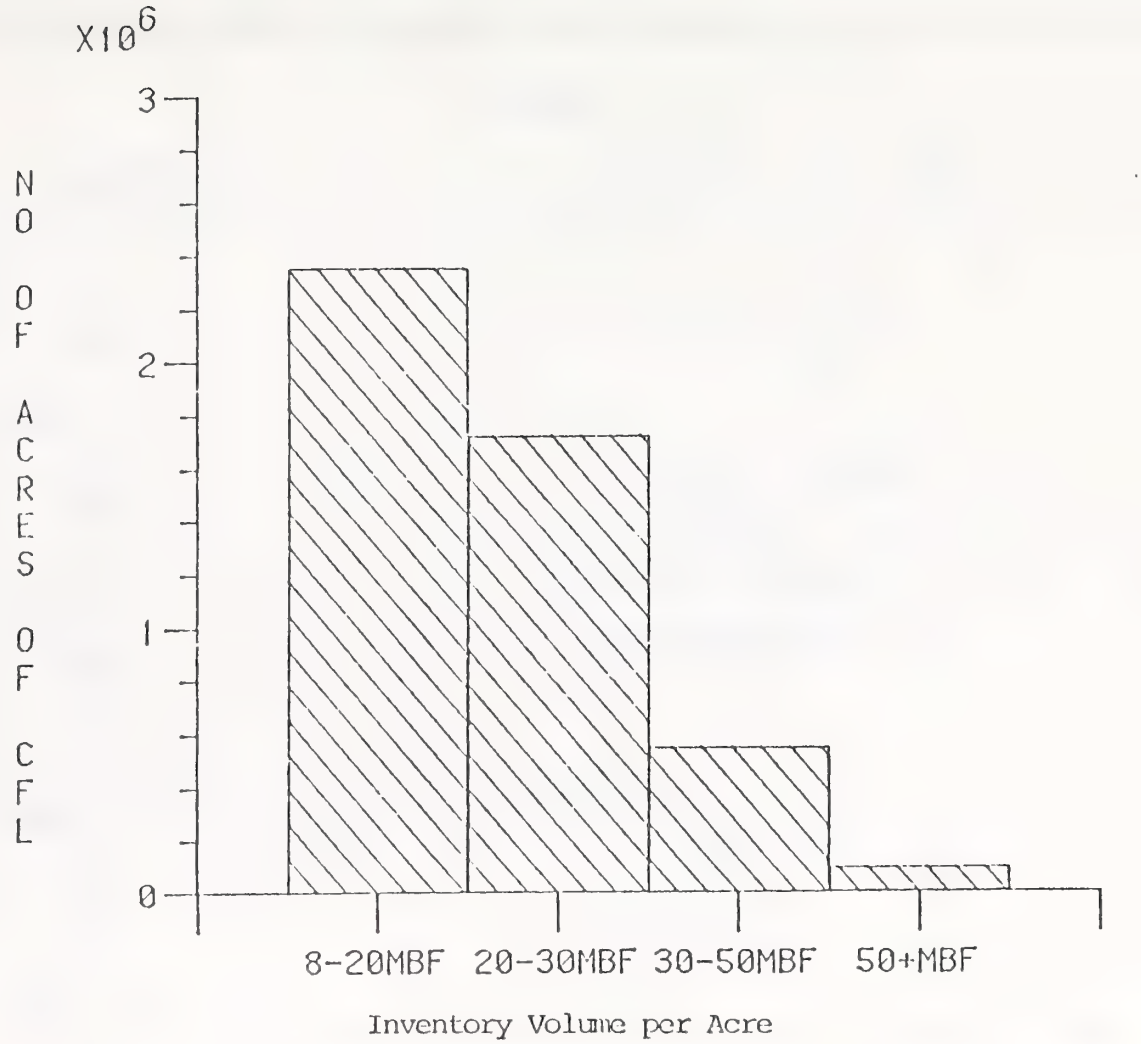
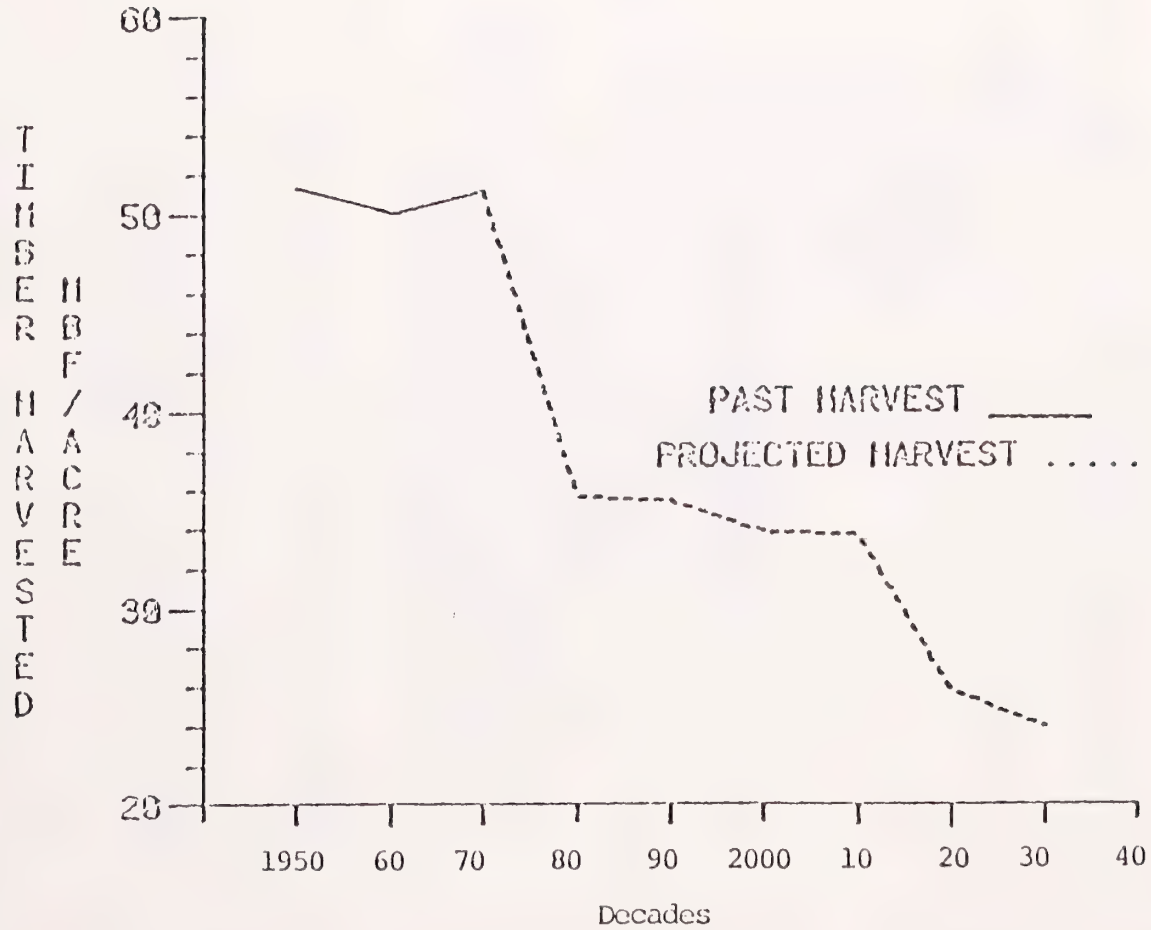


ACRES OF COMMERCIAL FOREST LAND BY VOLUME CLASS



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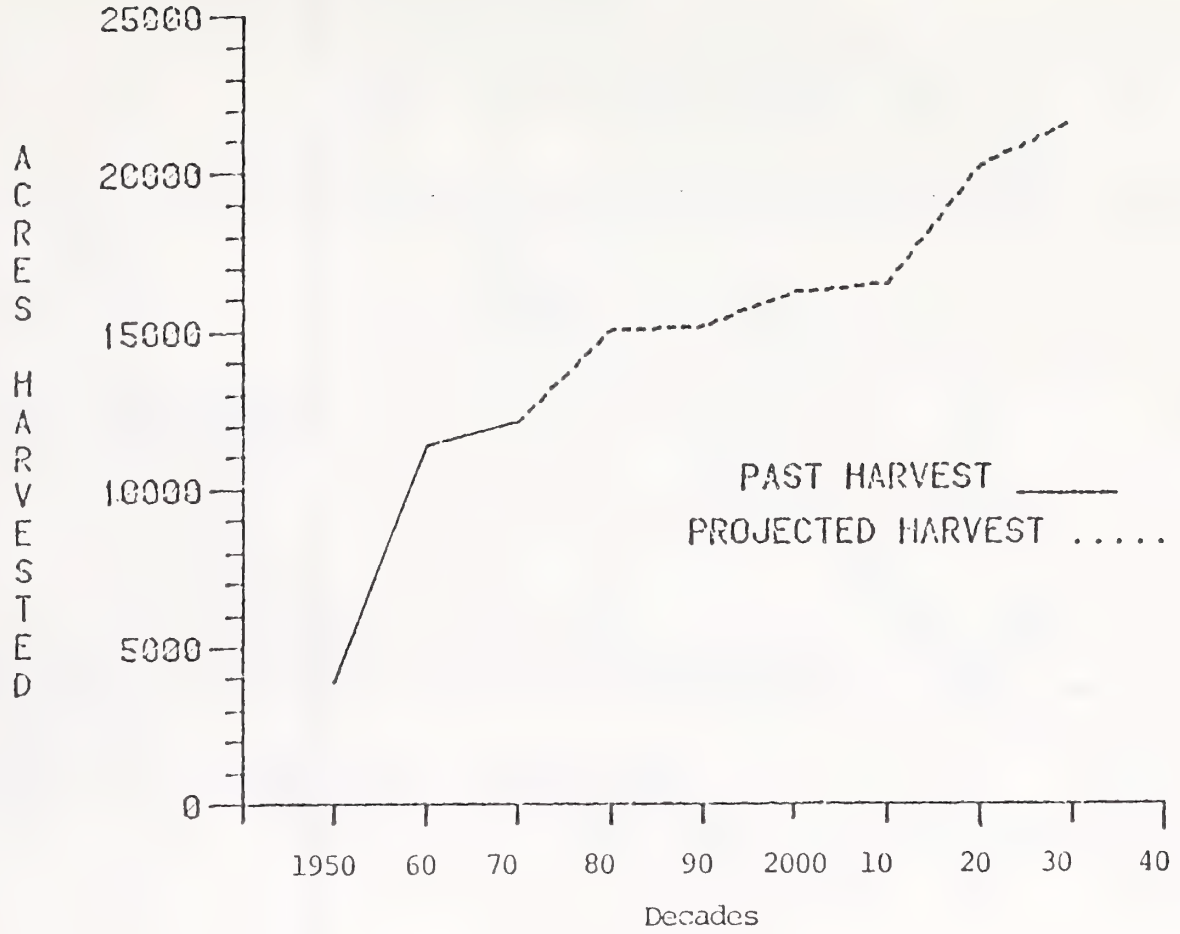
(data prepared by ADF&G from USFS harvest records and RAM model)



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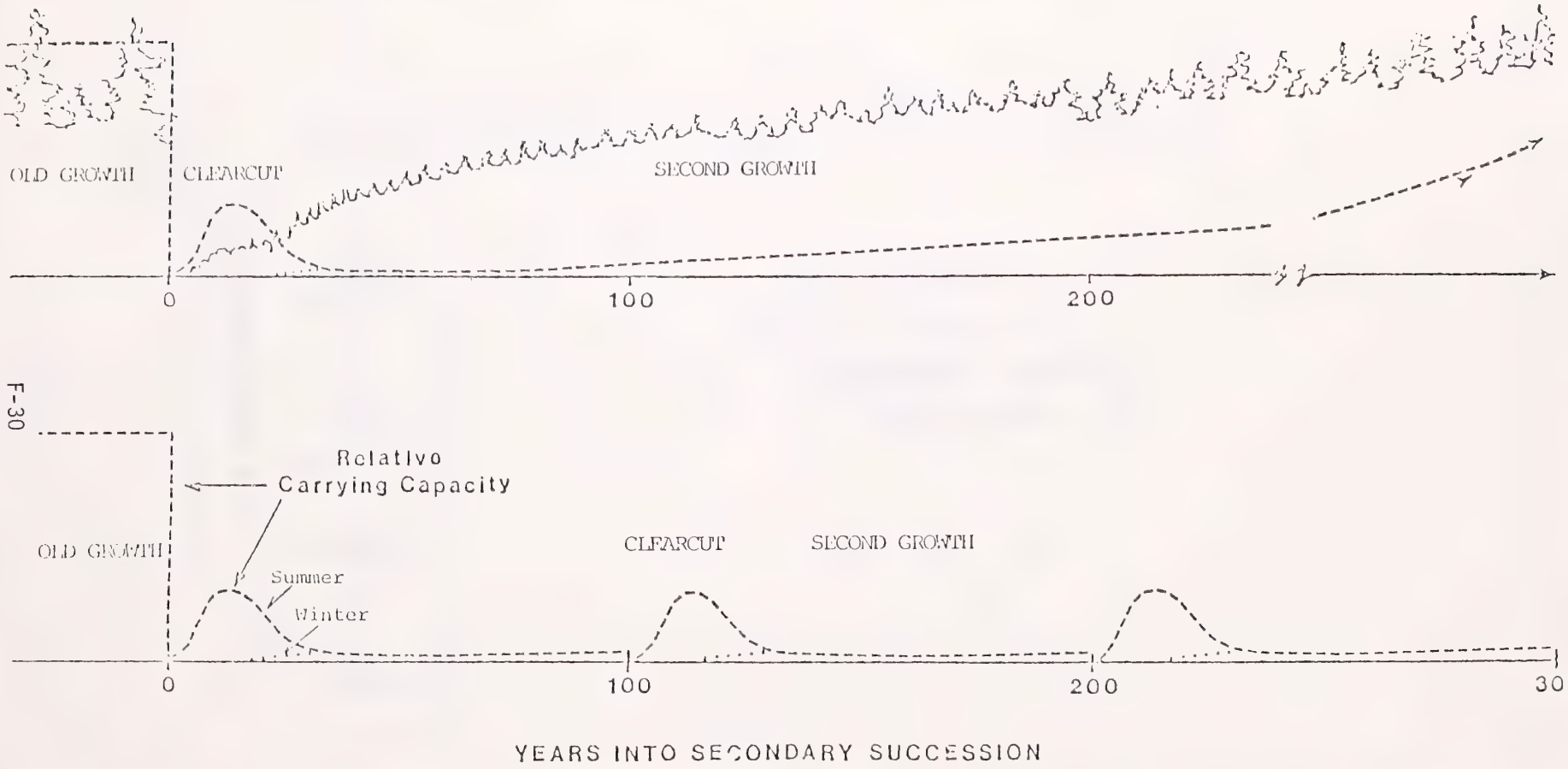
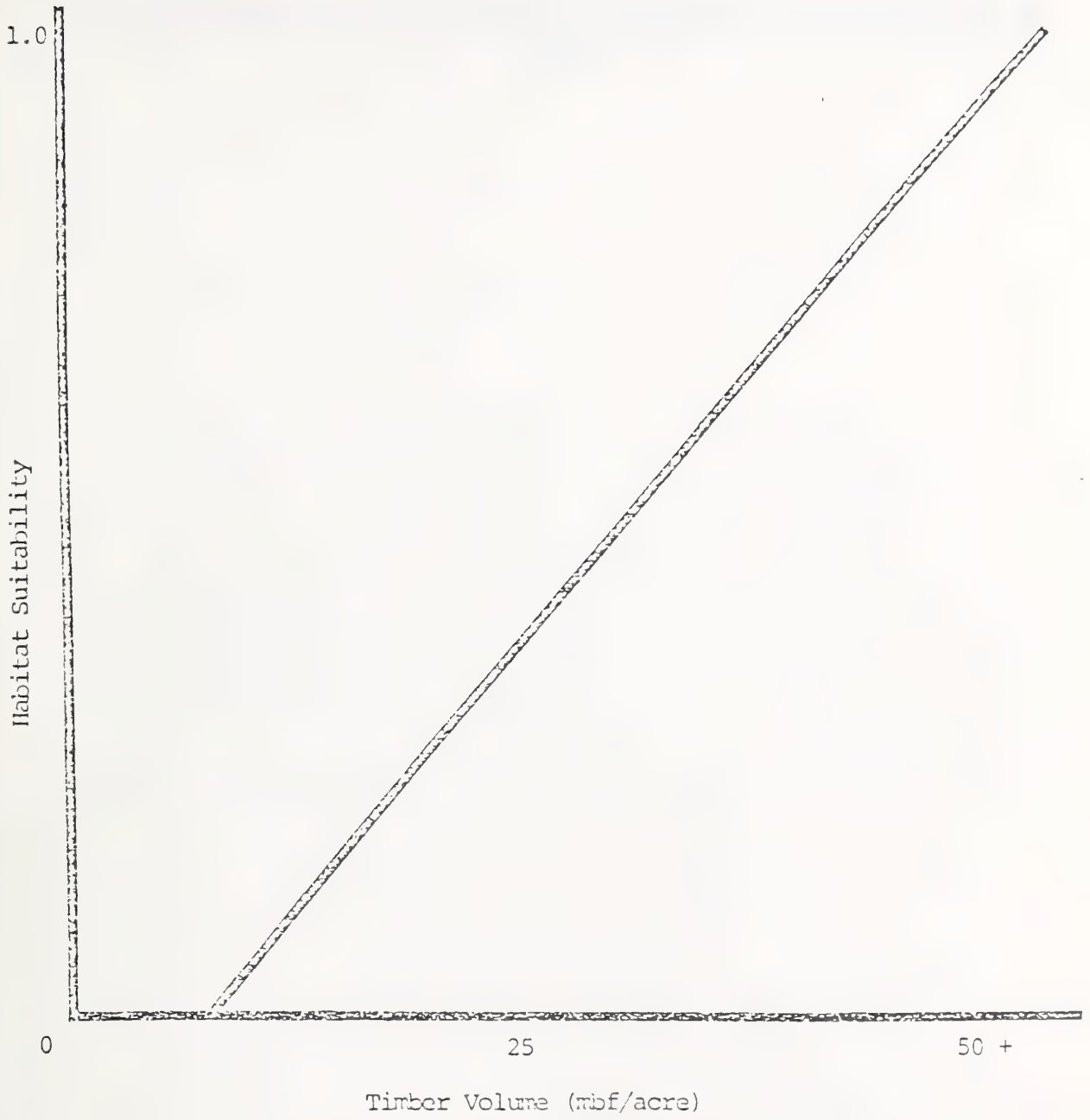


MODEL OF THE IMPACT ON DEER CARRYING CAPACITY OF EVEN-AGED SILVICULTURE ON A 100 YEAR ROTATION



MODEL OF WINTER DEER HABITAT SUITABILITY RELATIVE TO OLD GROWTH TIMBER VOLUME

Appendix G

FOREST SERVICE RESPONSE TO THE REPORT TO THE BOARD OF GAME

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

P. O. Box 1628, Juneau, AK 99802

2600
May 18, 1981

Dr. Ronald Skoog
Commissioner
Alaska Department of Fish & Game
Subport Building
Juneau, Alaska 99801

Dear Ron:

We appreciate your sharing the November 1980 paper on wildlife and forest practices which sets forth ADF&G concerns. The paper is professionally done, and offers constructive recommendations. Perhaps the best way to respond is to comment on each of the options for consideration beginning on page 18.

1. Option: Completely inform the public of the long-term irreversible consequences to habitat and wildlife of present cutting plans. This should be through a concerted public communication effort by both the State and Forest Service. Forest managers should consider public response as timber and wildlife management plans are developed.

Comment: We enthusiastically support any measure that will help inform the public about National Forest management. We thought we were doing an adequate job, but obviously need to do more. We would appreciate your suggestions on how we might better communicate.

2. Option: Expand research on wildlife-forest management relationships.

Comment: We agree that more research is needed on wildlife-forest management relationships. An information needs assessment has been drafted by the Forest Service. ADF&G participation is needed, not only to identify information needs, but also to define areas of responsibility and determine where cooperation would be mutually beneficial.

3. Option: Continue and increase Department participation in the IDT process and in Forest planning with more emphasis on timber sale layout. Establish a more formal mechanism for transmitting Department recommendations independent of the IDT process.

Comment: We welcome the participation of the Department in the IDT process, including timber sale layout, and are pleased that you recommend continued participation. ADF&G formal comments on the draft EAR/EIS now come to the Forest Service through the State A-95 Coordinator, a process that should remain in effect.

4. Option: Review the State Forest Practices Act for possible revision so that it more adequately addresses wildlife concerns.

Comment: Wildlife concerns should be reflected in forest management. Review of the State Forest Practices Act is the perogative of the State Legislature; however, the State Board of Forestry would be an appropriate organization to provide recommendations to the Legislature on this matter.

5. Option: Establish a close working relationship between the Department and private land owners so they are aware of wildlife-logging relationships.

Comment: We believe the development of a close working relationship between ADF&G and private land owners would result in a better understanding of wildlife-logging relationships, and therefore increased benefit to the public.

6. Option: Consider permanently retaining remaining high-volume old growth of more than 50,000 board feet per acre for wildlife except by special exemption agreed to mutually by the Department and the Forest Service.

Comment: The State and Forest Service should jointly (or under a third party contract) assess the impact of this recommendation. A preliminary projection of data indicates the 18,000 acres annually harvested would increase by 25 - 50%. It should also be noted that ANILCA established approximately 5 million acres of wilderness which places 1,500,000 acres of commercial forest land (CFL) and including more than 10,000 acres of high volume old growth in a permanent retention status. Of the 500,000 acres of CFL in LUD II more than 3500 acres are classed as high volume old growth forest. LUD III and IV areas contain approximately 3,500,000 acres of CFL, however only 2,200,000 acres are used for calculation of timber yields in TLMP. From this latter figure 273,000 acres (including 29,000 acres of high volume old growth forest) has been retained for protection of other resources including wildlife and fish.

7. Option: Consider cutting old growth of 30,000 to 50,000 board feet per acre only in proportion to its present occurrence for the next 10 years. Benefits to wildlife would be retention of high-value habitat. Adverse effects would be the increased acreage affected by cutting to obtain the same volume of timber. This cutting policy could be examined after 10 years and modifications considered.

Comment: This is related to No. 6, above, and our comment on the need to project the impact of implementing this is the same.

8. Option: Consider selective cutting with techniques not yet tried in Alaska such as balloon and helicopter logging as an alternative to clearcutting. Techniques as they are developed should be evaluated for their effects on wildlife.

Comment: A 1979 cooperative agreement involving Alaska Lumber and Pulp, Pacific Northwest Forest and Range Experiment Station, and Alaska Region of the Forest Service established a research and demonstration program in this general area. Objectives of the program are to:

a. Determine cost effectiveness of a running skyline, interlocking line boom yarder.

b. Determine cost effectiveness and efficiency of advanced computer-assisted skyline layout.

c. Determine if decreased soil disturbance from log suspension will meet both silvicultural and watershed management objectives.

d. Use a variety of silviculture systems and cutting prescriptions to achieve silvicultural landscape management and fish and wildlife habitat objectives.

Under d. above, tests of both shelter-wood and selection systems will be tried with a skyline yarder over the next several years.

We will also evaluate the utility of a heavy vertical lift system called Heli-Stat in Southeast Alaska during 1984. This experimental system combines the capabilities of four helicopters with a helium filled balloon.

At the present time, we have no firm plans for selection cutting by balloon or helicopter because shelterwood cutting provides some of the benefits of selection cutting yet permits the regeneration of Sitka spruce. Current research indicates that selection cutting usually does not allow the regeneration of Sitka spruce. We would consider selection cutting if new information indicated that this system will achieve desired forest management objectives.

9. Option: Consider either major islands, because they are distinct units with major water barriers to colonization, or management units as proposed for Forest Service Regional Plan, whichever are smaller, as the basis for individual planning units.

Comment: We will consider the need to change management area boundaries during the revision of TLMP. In the meantime, we will recognize wildlife and fisheries values through analysis of individual projects.

10. Option: Examine TLMP and consider the possibility of revision for several reasons.

Comment: Congress during the discussion of the Alaska National Interest Lands Conservation Act and in passage thereof reviewed and revised TLMP and provided direction on revision. Some changes were made in land allocation, and by requiring a number of reports, Congress reserved the right to make further adjustments. The first amendments of TLMP will be made by 1985; the complete revision by 1990. The various options discussed here will undoubtedly be considered by Congress as well as the Forest Service.

11. Option: Develop a method to give permanency to retention factors or areas left uncut for wildlife in LUDs III and IV.

Comment: LUD's I and II provide permanent protection for 2 million acres of CFL as noted in the comment in 6, discussed above. Congress has the sole responsibility to designate wilderness (LUD I) and make other permanent withdrawals. We understand the concern for permanency of retention areas. Accordingly, we have agreed to develop language, to be included in the Master Memorandum of Understanding, or a supplement thereof, for designating areas to be retained, and to notify the ADF&G prior to changing such designation. All such designations, of course, are subject to modification through the scheduled revision of TLMP, which is provided to recognize the changing needs of society as well as adjustments needed to reflect changes in the resource base. The revision of TLMP will consider adjustments in Land Use Designations.

12. Option: Develop close cooperation between the Department and the Forest Service in developing the Forest Service Regional Plan. This plan should be compatible with the objectives and responsibilities of the Department and be designed so as to insure adherence to its policies in the day-to-day management of the Tongass National Forest.

Comment: We welcome participation by ADF&G in preparing the Regional Plan. ADF&G as well as other State agencies have been involved in the development of the plan beginning last year. We will strive to make the Regional Plan compatible, insofar as possible, with the policies, objectives, and responsibilities of the various departments of State Government. The participation and agreement of the State in developing the Area Guide and TLMP show this can be done. The Regional Plan must, of course, be responsive to the statutes that govern National Forest management.

13. Option: Maintaining present levels of employment in the timber industry in Southeast Alaska, a stated objective of the State, should be examined relative to additional timber harvest from Native and State lands. As people are employed in industry resulting from timber harvest on Native and State lands, it may be possible to reduce cutting of National Forest lands and still retain the present level of employment.

Comment: Congress also debated this issue. The harvest levels for National Forest lands as set forth in TLMP and made a matter of statute through enactment of ANILCA considered the contribution to employment from the harvest levels of Native and State lands. Maintenance of current employment levels was predicated on the projected harvest level from the State and Native lands as well as a 450 million BF annual harvest from National Forest lands. Congress will undoubtedly reconsider this and related factors in relation to the studies they have requested. The State should have a strong voice in shaping this new Congressional position.

We hope these comments are helpful in explaining our position. If you wish, we would be happy to discuss these points further.

Sincerely,

JOHN A. SANDOR
Regional Forester

Appendix H

FOREST SERVICE RESPONSE TO JOINT RESOLUTION

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
P. O. Box 1628, Juneau, AK 99802

2600

JUL 10 1981

Mr. Milstead Zahn
Executive Director
Boards of Fisheries and Game
Alaska Division of Fish and Game
Subport Building
Juneau, AK 99801

Dear Mr. Zahn:

We have received your March 4 letter containing Joint Resolution #80-80-JB adopted by the Boards of Fisheries and Game on December 7, 1980, regarding impacts of clearcut logging on fisheries and wildlife resources. The ten items listed in the Resolution are well stated and reflect the concerns of the Joint Boards on this issue. We have included the Joint Resolution in the draft Regional Plan, which is in the final stages of preparation before distributing to the public for review.

Our response to the ten items listed in the resolution follow. Several of the items are almost identical to concerns expressed by the Department of Fish and Game in their November 1980 report to the Joint Boards regarding wildlife and forest practices in southeast Alaska. In these cases, our responses are identical to our reply to the Department.

Item 1. The public be fully informed by the Department of Fish and Game and the U.S. Forest Service of the long-term known and potential impacts of clearcut logging on fish and wildlife habitat and subsequent population levels.

Response: The Forest Service is highly supportive of any measure that will help provide full public disclosure of the resource management programs on the National Forest. We will continue to work with the Department of Fish and Game to provide this information to the public. Your recommendations on how we can improve this process would be most welcome.

Item 2. The Tongass Land Management Plan be revised by the Forest Service to provide more protection for valuable fish and wildlife habitat and reflect recent research findings.

Response: Passage of the Alaska National Interest Lands Conservation Act (ANILCA) established the direction we will follow in the revision of the Tongass Land Management Plan (TLMP). The Act directs the Forest Service to prepare a number of reports for Congress prior to 1985 and subsequently

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regarding various resources of the Tongass National Forest. We will need to consider any guidance the Congress wishes to provide in amending and revising TLMP. We intend to amend TLMP by 1985 and revise it by 1990. The habitat needs of the wildlife and fisheries resources will be considered and included in the amendment and revision process.

Item 3. If information is not adequate to ensure the protection of fish and wildlife resources, then targeted timber outputs should be reduced by the Forest Service rather than risk damage to these resources.

Response: ANILCA, which, for the most part, confirmed the land allocations in TLMP, requires that 4.5 billion BF of timber be made available to industry from the Tongass National Forest each decade. We believe we can achieve this level while providing for public use of fish and wildlife resources. We intend to work jointly with the ADF&G to develop additional means of providing protection for fish and wildlife resources while meeting Congressional direction.

Item 4. Research be expanded by botn the Department of Fish and Game and the U.S. Forest Service to determine the effects of timber harvest on fish and wildlife habitat requirements, and as new information becomes available, results be incorporated in the Forest Service planning process.

Response: We will continue to work closely with the Forestry Sciences Laboratory and the Department of Fish and Game in the development of a strong and responsive research program that addresses the relationships between timber harvest and wildlife and fish habitat needs.

Item 5. In all future timber harvests by the State and U.S. Forest Service, timber stands of more than 50,000 board feet per acre not be cut and other volume classes be cut only in proportion to their occurrence.

Response: The Forest Service and the Department of Fish and Game have agreed to jointly assess the impact of this recommendation on the wildlife and timber programs on the Tongass National Forest. A preliminary projection of data indicates the 18,000 acres annually harvested would increase by 25 - 50 percent. It should also be noted that ANILCA established approximately 5 million acres of wilderness which places 1,500,000 acres of commercial forest land (CFL) in a permanent retention status. In addition, there are more than 500,000 acres classified as Lud II. TLMP states that no timber harvest will be allowed in LUD II areas. Of a total area of 17.0 million acres on the Tongass National Forest, present plans only allocate 3.5 million acres to CFL. Of this, 2.2 million acres are included in the land base available for timber harvest in TLMP. Of the 2.2 million acres included for Timber harvest, an additional 276,000 acres will be retained for wildlife and other purposes during the plan period.

Item 6. Multiple use management of all resources be maintained by the U.S. Forest Service on the remaining lands not withdrawn for wilderness management nor selected by Native Corporations.

Response: As mandated by Congress in a number of Acts including the Multiple Use Sustained Yield Act of 1960 and the National Forest Management Act of 1976, all National Forest lands in Alaska will continue to be managed under the multiple use concept. However, ANILCA does provide for greater variety of uses in wilderness in Alaska including enhancement of fisheries habitat.

Item 7. Any assessment of resource and social values by the U.S. Forest Service include a full economic analysis of fish and wildlife resources and their human use.

Response: The economic values of the wildlife and fisheries resources on National Forest lands are included in the periodic ten-year assessment and five-year programs directed by the Resources Planning Act. This information, coupled with the reports required by ANILCA, will provide opportunity for consideration of the economic and social values of wildlife and fisheries resources in Forest planning. In addition, we include such analysis in the environmental assessments developed for each project.

Item 8. Selective cutting with techniques such as balloon and helicopter logging be considered by the U.S. Forest Service as an alternative to clearcutting.

Response: A 1979 cooperative agreement involving Alaska Lumber and Pulp Company, Pacific Northwest Forest and Range Experiment Station, and Alaska Region of the Forest Service established a research and demonstration program in this general area. Objectives of the program are to:

a. Determine cost effectiveness of a running skyline, interlocking line boom yarder.

b. Determine cost effectiveness and efficiency of advanced computer-assisted skyline layout.

c. Determine if decreased soil disturbance from log suspension will meet both silvicultural and watershed management objectives.

d. Use a variety of silviculture systems and cutting prescriptions to achieve silvicultural landscape management and fish and wildlife habitat objectives.

Mr. Milstead Zahn

Under d. above, tests of both shelter-wood and selection systems will be tried with a skyline yarder over the next several years.

We will also evaluate the utility of a heavy vertical lift system called Heli-Stat in southeast Alaska during 1984. This experimental system combines the capabilities of four helicopters with a helium filled balloon.

At the present time, we have no firm plans for selection cutting by balloon or helicopter because shelterwood cutting provides some of the benefits of selection cutting yet permits the regeneration of Sitka spruce. Current research indicates that selection cutting usually does not allow the regeneration of Sitka spruce. We would consider selection cutting if new information indicated that this system will achieve desired forest management objectives.

Item 9. The State Forest Practices Act be amended to adequately address wildlife concerns.

Response: Wildlife concerns should be reflected in forest management. Review of the State Forest Practices Act is the perogative of the State Legislature; however, the State Board of Forestry would be an appropriate organization to provide recommendations to the Legislature on this matter.

Item 10. Major islands or management units as proposed for the Forest Service Regional Plan, whichever are smaller, should be used by the U.S. Forest Service as the basis for individual forest management planning units.

Response: The need to change management area boundries will be considered as a part of the review and revision of TLMP. We are able, in accordance with present direction, to consider wildlife and fisheries resources for each of the major islands, or parts thereof.

We appreciate your interest in this important subject and look forward to any thoughts you may have regarding our management of the National Forests.

Sincerely,

for JOHN A. SANDOR
Regional Forester

Appendix I

MEMORANDUM OF UNDERSTANDING BETWEEN ALASKA DEPARTMENT OF FISH AND GAME AND THE U.S. FOREST SERVICE

MASTER

MEMORANDUM OF UNDERSTANDING

BETWEEN

THE ALASKA DEPARTMENT OF FISH AND GAME

AND

THE U. S. FOREST SERVICE

This Master Memorandum of Understanding (MMOU) made and entered into this 14th day of July, 1981, by and between the Alaska Department of Fish and Game (ADF&G) through the Commissioner, hereinafter referred to as the Department, and the U.S. Department of Agriculture (USDA) U.S. Forest Service (FS) through the Regional Forester, hereinafter referred to as the Forest Service. National Forest lands referred to in this document are the Federally owned lands in Alaska administered by the Forest Service such as wilderness, wild and scenic rivers, National monuments, and other lands within the Tongass and Chugach National Forests.

It is recognized that the Department has been created under the laws of the State of Alaska (see appendix) to manage, protect, maintain, enhance, rehabilitate and extend the fish and wildlife populations of the State; and that the Forest Service is responsible under the laws of Congress and regulations of the USDA (see appendix) for the administration and multiple use management of the natural resources including fish and wildlife habitat on the National Forest in the State of Alaska.

It is the mutual desire of the Department and the Forest Service to work in harmony for the common purpose of maintaining, developing, and managing the fish and wildlife populations and habitat as well as other resources on the National Forest lands in the best interest of the people of Alaska and of the United States.

In consideration of the above premises the Department and the Forest Service hereto agree as follows:

A. The Forest Service agrees:

1. To recognize the Department as the agency with the authority, jurisdiction, and responsibility to manage, control, and regulate fish and wildlife populations on National Forest system lands.

2. To cooperate with the State of Alaska in the enforcement of Alaska fish and game laws and regulations to the extent permitted by Federal laws and regulations and to report violations or suspected violations to the Alaska Department of Public Safety, Division of Fish and Wildlife Protection (16 USC 553 & 36 CFR 261.8).

3. To permit the construction and maintenance of structures needed to facilitate fish and wildlife activities of the Department within the National Forests, provided such structures conform in character and location with the usual requirements of the Forest Service, and their intended use is not in conflict with Forest Service policy, objectives

and management goals, and further provided that these structures are covered by a special use permit in accord with Title V of the Federal Land Policy and Management Act of 1976.

4. To cooperate with the Department in the design, implementation, and maintenance of fish and wildlife habitat improvements on National Forests providing they are consistent with joint Department and Forest Service habitat management plans and conform to laws and regulations concerning the use of these lands, and are covered (when needed) by special use permits, cooperative agreements, EAR's, or EIS's.

5. To notify the Commissioner of proposed changes in FS policies and regulations which may affect Department programs on National Forest lands.

6. To keep the Department informed and actively involved with the project planning and Interdisciplinary Team (IDT) process for logging, road construction, insect and vegetation control, mining, mineral leasing, and the removal of nonleasable minerals, and any other developmental activities that may affect fish and wildlife resources.

7. To assist the Department, when requested, in fish and wildlife population surveys and harvest data collection to the extent of available funding.

8. To consult with the Department, prior to any proposed change in use designation and classification of any Forest Service Lands, for evaluating significant fish and wildlife values that may affect or be affected by the proposed action.

9. To furnish the Department with copies of fish and wildlife reports, and material prepared by the Forest Service pertinent to fish and wildlife and their habitat on the National Forests. These will include special reports, annual wildlife reports, recreation reports, Forest wildlife plans, and recommendations for regulatory changes necessary for protection of fish and wildlife habitat.

10. To consult with the Department at all planning levels in the development of fire management plans which may include establishment of priorities for the control of wildfires and/or wildlife habitat improvement by use of prescribed fires.

11. To consult with the Department in the cooperative planning process for enhancement of fish resources through aquaculture facilities and activities and to include these plans and progress reports in the National Forest Management Plans.

12. To cooperate in planning, collection, interpretation, and dissemination of statistical data, banding and tagging records, population trend data, census information and harvest tabulation for fish and wildlife on Forest Service lands.

13. To cooperate in the development and implementation of new analytical techniques such as application of instream flow measurements, remote sensing technology, habitat inventories and evaluation procedures, and habitat type mapping.

14. To incorporate into Forest Service management plans those fish and wildlife management plans formally adopted by the State to the degree possible with resource allocations made through the Tongass and Chugach Land Management Plans (LMP).

B. The Department of Fish and Game agrees:

1. To recognize the Forest Service as the agency responsible for the management of National Forest Lands in Alaska and the fish and wildlife habitat thereon.

2. To regulate and manage fish and wildlife populations on National Forest lands in such a way as to maintain or improve the quality of fish and wildlife habitat and its productivity.

3. To secure an appropriate agreement or easement from the Forest Service prior to placing signs or other structures on Forest Service lands.

4. To make available to the Forest Service, facilities, equipment, and assistance as can be utilized in fish and resident wildlife work consistent with the Department requirements and to assist the Forest Service when requested, in fish and wildlife habitat inventories, insofar as practical.

5. To notify the Regional Forester of emergency and proposed annual changes in fish and game regulations affecting Forest Service lands, and of other changes in regulations or management plans, such as a listing of proposed State-designated critical habitat areas, which may influence Forest Service management.

6. To provide the Forest Service with copies of the Department approvals for activities affecting designated anadromous fish streams on Forest Service lands as issued to persons or governmental agencies in accordance with Alaska Statutes 16.05.870, 16.10.010, and 16.05.840 insofar as these statutes apply to Forest Service activities.

7. To provide fish and wildlife input to National Forest land use planning efforts at all levels of planning.

8. To cooperate with the Forest Service in the planning, development, and implementation of habitat management plans, within the limitations of funds and manpower available for that purpose. This will include cooperation in the prevention of forest fires, and participation in the development of fire management plans which may include improving the quality or diversity of wildlife habitat by prescribed fires.

9. To provide the Forest Service with reports relating to management of fish and wildlife populations and habitat.

10. To make or sanction no introduction of any native or exotic fish or game wildlife species, building structure, or conduct any habitat modification program on National Forest lands, without receiving formal agreement from the Forest Service after providing information necessary for the Forest Service to prepare an environmental assessment on the proposal.

11. To notify the Forest Service of any animal damage control activities on Forest Service lands; and to obtain Forest Service approval for the use of pesticides, herbicides, or other toxic chemical agents in the course of animal damage control.

12. To request from the Department of Public Safety normal enforcement of the State fish and game laws and regulations that are applicable on Forest Service lands.

13. To notify the Forest Service of fish and wildlife habitat conditions on Forest Service lands which are noticeably below optimum and to suggest programs to alleviate such conditions.

14. To provide all maintenance on any facilities, structures or other modifications of the Department on Forest Service lands and to recognize the sole responsibility of the Department for liability claims arising on or out of, or as a result of, the said modifications, facilities and/or structures on National Forest lands, and reimbursement for damages or costs of rehabilitation of the respective parties' property or capital improvements.

15. That the State will provide for the definition, preference, and participation in subsistence uses of fish and wildlife as provided in the Alaska National Interest Lands Conservation Act sections 803, 804, and 805.

C. The Department and the Forest Service mutually agree:

1. To cooperate, consistent with respective statutory and regulatory responsibilites, in the management of fish and wildlife populations and habitat and other pertinent National Forest resources consistent with the multiple-use land programs of the State of Alaska and the U. S. Department of Agriculture.

2. To foster a united approach by the Department and the Forest Service to problems relating to fish and wildlife management, land-use planning, and other issues of mutual concern that will mutually support the management objectives and goals of both agencies to the extent possible.

3. To make available to representatives of the other agencies such improvements, facilities, and equipment as would normally be used in fish and wildlife and Forest Service work, provided they are not currently in use by the owning agency or committed to other use and provided that such use will be coordinated with local representatives of each agency and will be covered by separate permits and agreements as necessary.

4. To resolve, on the ground, all questions pertaining to the cooperative work of the two agencies which arise in the field and to refer all matters of disagreement that cannot be resolved at equivalent field levels to the Regional Forester and to the Commissioner of the Alaska Department of Fish and Game for decision before either agency expresses its position in public.

5. To encourage a free exchange of research and assessment data to insure the success of cooperative studies and to cooperate to the degree funds are available in preparation of publications, announcements, and dissemination of information. Any material published as a result of cooperative studies may be reproduced, with credit to be given to the agency responsible for the development of the material. Any news releases relating specifically to cooperative programs may be made only by mutual consent of both parties.

6. Nothing herein is intended to conflict with or limit the current directives, laws, delegations of authorities or regulations of the signatory agencies. If there are conflicts with current directives, at the first opportunity this agreement will be changed by amendment or a new agreement will be entered into.

7. That nothing in the agreement shall be construed as obligating the Department, the State of Alaska, Forest Service, or the United States Government to the expenditure of funds and for the future payment of money in excess of appropriations authorized by law.

8. Each party agrees that it will be responsible for its own acts and the results thereof and each party shall not be responsible for the acts of the other party; and each party agrees it will assume to itself risk and liability resulting in any manner under this agreement.

9. That no member of, or delegate to, Congress or Resident Commissioner shall be admitted to any share or part of this agreement, or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this agreement if made for a corporation for its general benefit.

10. To comply with Public Law 91-190, the National Environmental Policy Act of 1969, the cooperator and Forest Service agree to direct their program activities covered by this agreement toward managing and enhancing the environment for the widest range of beneficial uses without its degradation or risk to health or safety or other undesirable consequences. The cooperator further agrees to assist the Forest Service in the preparation of environmental statements as required by section 102(2)(c) of PL 91-190 for all major Federal actions taken under this agreement which might significantly affect the quality of the human environment or be highly controversial in regard to unresolved conflicts concerning the use of resources.

11. To meet annually, at the Regional Forester/Commissioner staff level, and in the last one-quarter of the calendar year, to discuss matters relating to the management of fish and wildlife resources on, or affected by Forest Service lands; and to provide for other meetings at various administrative levels for discussion of law enforcement; educational programs; cooperative studies; research; fish and wildlife surveys; habitat development; hunting, fishing, and trapping seasons; and such other matters as may be relevant to fish and wildlife populations and their habitats.

12. That amendments to this agreement may be proposed by either party and shall become effective upon approval by both parties.

13. To prepare any supplemental memorandum of understanding and/or specific cooperative agreements within the framework of this Master Memorandum. Supplements will be numbered consecutively and be signed by the same signatures or their representatives as this MMOU.

14. That this agreement shall become effective as soon as it is signed by the Commissioner of the Department, and Regional Forester of the Forest Service and shall continue in force until terminated by either party following one year notice in writing to the other of the intention to terminate upon a date indicated.

STATE OF ALASKA

Department of Fish and Game

By Ronald O. Skoog
Ronald O. Skoog, Commissioner

Date 6 July 81

U. S. DEPARTMENT OF AGRICULTURE

Forest Service

By John A. Sandor
John A. Sandor, Regional Forester

Date July 6, 1981

APPENDIX TO THE MEMORANDUM
OF UNDERSTANDING

Relevant State of Alaska statutes and administrative regulations pertaining to the protection, management, and use of fish and wildlife populations and wildlife habitat in the State of Alaska and Federal authorities for management of National Forest lands.

Forest & Rangeland Renewable Resources Planning Act of August 17, 1974, (88 Stat. 476, as amended; 16 USC 1600-1614).

National Forest Management Act of October 22, 1976, (90 Stat. 2949; 16 USC 472 et seq.).

Fish and Wildlife Coordination Act of March 10, 1934, (48 Stat. 401, as amended; 16 USC 661 et seq.).

Endangered Species Act of December 28, 1973, (87 Stat. 884 as amended; 16 USC 1531 et seq.).

Dingell Johnson Sport Fish Restoration Act.

Pittman Robertson Wildlife Restoration Act.

Marine Mammal Protection Act.

Coastal Zone Management Act.

Lacey Act.

Administrative Procedures Act.

Anadromous Fish Conservation Act.

Alaska National Interest Lands Conservation Act 1980, (P.L. 96-487).

Sikes Act of 1974, as amended (P.L. 93-452).

Sikes Act of 1978, as amended (P.L. 95-420).

Multiple Use-Sustained Yield Act of June 12, 1960, (74 Stat. 215, 1959 amended; 16 USC 528-531).

Fish and Wildlife Conservation Act of 1979.

Conservation Programs on Public Lands Act of September 15, 1960, (74 Stat. 1052, as amended; 16 USC 670g-670l, 670o).

Knutson-Vandenburg Act of June 9, 1930, (46 Stat. 527, as amended; 16 USC 576-576b).

Federal Land Policy and Management Act of 1976, (P.L. 94-579; 90 Stat. 2743).

Appendix J

STATE OF ALASKA DECISION MEMORANDUM

MEMORANDUM

State of Alaska

TO Jay S. Hammond
Governor

DATE: June 3, 1981

FILE NO:

TELEPHONE NO: 465-4100

FROM Ronald O. Skoog
Commissioner
Department of Fish and Game

SUBJECT: Decision Memorandum: Wildlife-Logging Relationships

1. Problem: For years wildlife and forest managers have agreed that timber management (i.e., cutting) improved habitat for many fish and wildlife species, and on this basis State and Federal fish and wildlife agencies generally have been supportive of U.S. Forest Service timber harvesting programs, including those in Southeastern Alaska. However, research recently conducted on Canada geese, mountain goats, and particularly black-tailed deer has shown that this beneficial relationship between timber harvesting and wildlife habitat likely does not exist in Southeastern. The Department of Fish and Game now recognizes that the present forest management practice of clearcut logging on a 90-125 year rotation cycle is permanently converting old-growth, climax forest with high wildlife values to even-aged, second-growth stands of much less value to some wildlife. Until now logging has been concentrated in the economically attractive, higher volume stands at low elevations. These stands represent mostly the old-growth forest communities, and their loss under the present rotation cycle is resulting in a permanent alteration of the natural diversity of plant and animal communities in areas being logged.

Federal legislation concerning forest management requires multiple-use management, maintenance of forest diversity, and maintenance and improvement of habitat for wildlife indicator species; if followed, Federal law can provide adequate protection for fish and wildlife on Federal lands. State legislation concerning forest management on State and private lands (State Forest Practices Act) does not address fish and wildlife concerns. The Alaska Boards of Fisheries and Game have expressed grave concern about the effects of present logging practices on fish and wildlife. Furthermore, as logging increases on State and private lands while continuing at about the same level on Federal lands, the potential exists for even greater adverse impacts.

2. Action Requested:

A. Develop, in concert with the U.S. Forest Service and the State Department of Natural Resources, increased public awareness of the trade-offs involved in timber management by providing information identifying timber harvesting options and the effects on fish and wildlife populations to the public and to governmental officials.

B. Recognizing the State's intent to maintain existing levels of employment in the timber industry, review previous State decisions regarding logging in Southeast Alaska, and if necessary, enact policy changes to seek modification of logging practices on Federal, State, and private lands to minimize impacts on fish and wildlife, their habitats, and their users.

C. Provide, in concert with the U.S. Forest Service and the State Department of Natural Resources, research and development programs designed to assess and mitigate the adverse impacts of timber harvesting on game.

3. Options:

A. Concur with present forest-management policies of concentrating timber harvest in high-volume, old-growth stands located throughout the forest, but attempt to modify cutting practices to reduce impacts on wildlife and its habitat within the constraints imposed by such policies.

B. Rely exclusively on new forest management policies being developed by the Forest Service and the industry as a result of ANILCA. Such a new forest management policy may require the maximum harvest of special and marginal timber which is economically achievable. This may in turn, reduce the rate at which high volume, old-growth stands are harvested. Under this option we could seek to manage game in remaining areas at satisfactory population levels on the basis that the reduced rate of harvest of high volume old-growth stands would provide sufficient time for the research and development programs to resolve the problem of providing for adequate game populations.

C. Seek agency cooperation and industry support for preserving adequate stands of high-volume, old-growth timber to provide healthy, viable fish and wildlife populations to meet recreational and subsistence use requirements in areas selected for cutting, and work with the public, with industry, and with forest managers to maintain the natural diversity of plant and animal communities throughout the forest as much as possible.

4. Option Recommended: Considering present circumstances, Option C is recommended as the initial approach. As research and development provide the means to mitigate or alleviate losses of wildlife or its habitat, Option B could become a more viable option and be substituted in whole or in part for Option C. The Alaska Department of Fish and Game will take the lead in consulting and working with the U.S. Forest Service and the State Department of Natural Resources in order to minimize damage to or loss of important fish and wildlife habitat.

Recognizing the State's desire to maintain existing levels of employment in the timber industry, major areas of concern, need, and attention in implementing the recommended option include the following:

A. Identification of key or critical fish and wildlife habitats that need to be retained in an unlogged condition.

B. Identification of areas that can be logged with least impact on fish and wildlife habitats. Identification of forest practices in such areas which would provide greater timber volumes than would ordinarily be allowed.

C. Identification of drainages which have high fish and wildlife values or presently receive high public use related to fish and wildlife for the permanent retention of old-growth timber. Identification of the extent to which such values and needs are adequately provided for in those areas of the forest which will be retained in an unlogged state.

D. Improvement of methods of logging and silviculture, utilizing selective cutting in preference to clearcutting where reasonably possible and increasing the production of timber on lands being logged.

E. Resolution of conservation problems on an areal or regional basis as they become known and identified.

F. Expansion of research on wildlife-forest relationships through cooperation or coordinated programs involving Federal, State, and private organizations. The research should be directed at determining precise habitat requirements and possible techniques of maintaining satisfactory game populations and other techniques of mitigating the adverse impacts of timber harvesting upon game.

G. Improved working relationships and coordinated logging programs between governmental agencies and private land-owners/companies to maximize conservation efforts where possible.

H. Negotiations, if necessary, to change over time the present Federal and State laws, policies, guidelines, and management plans in order to provide more firm direction, coordination, and consistency for the efficient utilization of our timber resources and for adequate conservation of Alaska's fish and wildlife populations and habitats.

5. Funding: No additional funds are requested for FY 1981. Additional funds are being requested for FY 1982 to better define the effects of logging on key fish and wildlife species and areas which can be logged with the least impact.

6. Decisions:

I do not find the options presented as being necessarily mutually exclusive but do, however, concur with your recommendation to initially pursue Option C.

Jay S. Hammond
Governor

June 16, 1981
Date

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